No Time to Waste:
Climate action through secure land rights and sustainable land use

ANGOC

LAND WATCH ASIA

Founded in 1979, the **Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC)** is a regional association of national and regional networks of civil society organizations (CSOs) in Asia actively engaged in promoting food sovereignty, land rights and agrarian reform, sustainable agriculture, participatory governance, and rural development. ANGOC member networks and partners work in 10 Asian countries together with some 3,000 CSOs and community-based organizations (CBOs). ANGOC actively engages in joint field programs and policy discussions with national governments, intergovernmental organizations (IGOs), and international financial institutions (IFIs).

The complexity of Asian realities and diversity of CSOs highlight the need for a development leadership to service the poor of Asia – providing a forum for articulation of their needs and aspirations as well as expression of Asian values and perspectives. Thus, the ANGOC network shall advocate and promote land and resource rights, smallholder agriculture, and human rights and civic participation, by serving as a platform for Asian CSOs to generate knowledge, share tools, and conduct constructive policy dialogues.

ANGOC is a member of the Global Land Tool Network (GLTN), Global Forum on Agricultural Research (GFAR), Indigenous Peoples' and Community Conserved Areas and Territories (ICCA) Consortium, and the International Land Coalition (ILC).

Land Watch Asia (LWA) is a regional campaign to ensure that access to land, agrarian reform and sustainable development for the rural poor are addressed in national and regional development agenda. The campaign involves civil society organizations in Bangladesh, Cambodia, India, Indonesia, Kyrgyzstan, Nepal, Pakistan and the Philippines. LWA aims to take stock of significant changes in the policy and legal environments; undertake strategic national and regional advocacy activities on access to land; jointly develop approaches and tools; and, encourage the sharing of experiences on coalition-building and actions on land rights issues.

ANGOC is the regional convenor of LWA.

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Contents

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Land Watch Asia
Land Monitoring Working Group

Trustable land information systems are fundamental for responsible land governance. There is a need for sustainable, transparent, reliable data on land rights to empower people and communities to defend their land rights. Thus, the Land Watch Asia Land Monitoring Working Group (LWA LMWG) provides a platform for civil society organizations from seven countries in Asia to discuss, enhance each other's capacities, and develop tools towards monitoring global commitments as well as governments' policies and programs on land and resource tenure.

BANGLADESH

Association for Land Reform and Development (ALRD) was established in January 1991 as single-focused rights based national networking organization, mandated to facilitate the land and agrarian reform advocacy, mobilization and capacity building of its partners and allies in enabling access to and control over natural resources of the poor, landless and marginalized communities in Bangladesh. In the subsequent decades, ALRD emerged as a professionally trained knowledge network in the land sector to amplify the collective voice of the marginalized communities in Bangladesh.

ALRD has a network of 200+ NGOs and civil society organizations all across the country.

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CAMBODIA

STAR Kampuchea (SK) is a Cambodian non-profit and non-partisan organization established in 1997 dedicated to building democracy through the strengthening of civil society. SK also provides direct support to communities suffering from resource conflicts like land grabbing and land rights abuses through capacity building and legal services.

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INDIA

The **Foundation for Ecological Security (FES)** works towards conservation of nature and natural resources through collective action of local communities. In India, FES has played a pioneering role in furthering the concept of *Commons* as an effective instrument of local governance, as economic assets for the poor and for the viability of adjoining farmlands.

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Founded in 1984, the **South Asia Rural Reconstruction Association (SARRA)** has the mandate to strengthen grassroot democracies in the South Asia region. SARRA has functioned as the regional partner of ANGOC in building the capabilities of the NGO sector, CSOs and academic institutions to contribute in their empowerment and to enable them to actively participate in development processes. SARRA emphasizes the importance of traditional knowledge by blending with modern development techniques for the empowerment of the poor and powerless communities for their sustainable development.

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INDONESIA

Established in 1994, the **Konsorsium Pembaruan Agraria (KPA) or Consortium for Agrarian Reform** currently consists of 153 people's organizations (peasants, indigenous peoples, rural women, fisherfolk, urban poor) and NGOs in 23 provinces in Indonesia. KPA fights for agrarian reform in Indonesia through advocacy and the strengthening of people's organizations. KPA's focus on land reform and tenurial security, and sustained policy advocacy initiatives on these issues have put the coalition at the forefront of the land rights struggles of Indonesia's landless rural poor, especially with indigenous peoples in several areas in Outer Java. KPA encourages a participatory and pluralistic approach that recognizes the development of different systems of land use and tenure to ensure land rights. KPA is a people's movement that has an open and independent character.

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Bina Desa is a Non-Governmental Organization (NGO) in the field of rural human resource empowerment. Established on 20 June 1975, Bina Desa focused on community empowerment by implementing community-based organizing and empowering the rural people rights issues, including land rights, food and agriculture-fisheries, natural farming and gender justice.

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KYRGYZSTAN

The **National Union of Water Users Association (NUWUA)** is a nonprofit organization formed on the basis of voluntary participation, self-government, legality, publicity, openness, acting in the public interest with a view to coordinating and facilitating the activities and development of water user associations of Kyrgyzstan. The main objectives of the NUWUA are to: a) promote the development of WUAs; b) coordination of their activities; c) settlement of WUA relations with other economic entities and State bodies; and, d) attraction of loans, grants and other funds from donor organizations to provide technical assistance and improve the irrigation infrastructure of the viable water users' associations that have entered the Union.

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NEPAL

Community Self Reliance Centre (CSRC) has been at the forefront of land and agrarian rights campaign in Nepal. CSRC educates, organizes, and empowers people deprived of their basic rights to land to attain free, secure, and dignified lives. The organization's programs focus on strengthening community organizations, developing human rights defenders, improving livelihoods, and promoting land and agrarian reform among land-poor farmers. Since its establishment, CSRC has constantly worked to transform discriminatory and unjust social relations by organizing landless, land poor and marginalized communities to claim and exercise their rights.

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PHILIPPINES

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Center for Agrarian Reform and Rural Development (CARRD) is a non-stock, non-profit organization working for agrarian reform and rural development. CARRD believes in an inclusive rural development that is based on equitable access to and ownership of productive resources.

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Philippine Association For Intercultural Development (PAFID) is a social development organization which has been assisting Philippine indigenous communities to secure or recover traditional lands and waters since 1967. It forms institutional partnerships with indigenous communities to secure legal ownership over ancestral domains and to shape government policy over indigenous peoples' issues.

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Xavier Science Foundation, Inc. (XSF) is a non-political, non-stock, non-profit organization established and designed to encourage, support, assist, and finance projects and programs dedicated to the pursuit of social and educational development of the people in Mindanao. It is a legal and financial mechanism generating and managing resources to support such socially-concerned and development-oriented projects and programs.

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Foreword

Land tenure is a particularly important issue in Asia, a region most prone to natural disasters and the impacts of climate change, and home to the world's poorest who depend on land for their life and livelihoods.

However, public understanding of the links between climate change, disasters, and land tenure is still very limited, even among civil society organizations.

This publication, *"No Time to Waste: Climate action through secure land rights and sustainable land use,"* seeks to train the spotlight on specific issues of land tenure, land use and climate change, and on how these are intertwined.

It does so from the perspective of the poor and marginalized who are often forced to bear the brunt of the social impacts of climate change, yet whose voices are not heard or even ignored in talks about climate change and on how to mitigate it. Those who are poor and without legal tenure on land are often treated as victims, rather than as active partners and responders in addressing climate change.

The main paper is presented in five parts: a) Understanding the links: climate change and land tenure in the Asian context; b) Natural disasters: land issues in vulnerability and resiliency; c) Land tenure rights in climate change adaptation and mitigation; d) Towards a rights-based approach to climate change; and, e) Ways for moving forward.

The discussions are illustrated through seven case studies written by Land Watch Asia CSO partners from Bangladesh, Cambodia, India, Indonesia, Kyrgyzstan, Nepal, and the Philippines.

These cases describe how the lack of land rights and tenure security increases the vulnerability of the rural poor, and reduces their capacity to cope with the changes brought about by climate change. They serve to illustrate how improved tenure security, resource rights and land governance can increase the capacity of poor people to adapt to climate change. At the heart of the discussion is that the poor and marginalized who carry the heaviest burdens of climate change impacts also stand to gain the most when programs are drawn up with the participation of people themselves.

The publication highlights the need to address land tenure issues in early efforts at building resilience and disaster preparedness. Climate change adaptation needs to be mainstreamed into national planning and policy frameworks, including land policy. These efforts should aim to deliver adequate tenure security, as this is necessary to provide people with the rights, resources, and incentives for good land and resource management in ways that reduce their vulnerability.

And given the increasing recognition given to traditional knowledge and practices for ecological preservation and restoration, it also becomes imperative and timely that we initiate discussions on improving their tenure along the discourse of climate change mitigation.

Drawn from various CSO field experiences and secondary sources, the paper and case studies here are presented in simple narratives, in an attempt to further "humanize" the discourse of climate change as seen from below, with a land rights perspective. As such, this publication points to the need for CSOs to support public awareness and advocacy on the need to address land tenure rights in climate responses.

Appreciation goes to the Land Watch Asia partners, Antonio "Tony" Quizon and Marianne Jane Naungayan, and the production team in bringing to focus this topic to a wider audience.

Nathaniel Don Marquez
Executive Director, ANGOC

Understanding the links: land tenure, vulnerability, and climate-led disasters

Edited by Antonio B. Quizon, Nathaniel Don E. Marquez, and Marianne Jane E. Naungayan
for ANGOC and Land Watch Asia

Introduction

The impacts that climate change brings upon human settlements and land use systems can bear heavily on people's land access and land tenure in ways that affect their livelihoods, well-being, and sense of security (Quan and Dyer, 2008). Communities may be hit by an increasing frequency of extreme and sudden weather events such as typhoons, floods, and droughts that can erode or inundate homes and farmlands, render them unproductive, or challenge existing tenure relationships to the disadvantage of vulnerable groups, resulting in forced migration and displacement of populations. Communities may also gradually be detached from their former homes and lands as a result of slow-onset environmental degradation, such as sea-level rise, salinization of soils, and changes in weather patterns.

But while climate change affects everyone, those who are poor and lack land tenure rights are among the most vulnerable to the direct effects of climate change. Poverty forces people to cultivate marginal lands that may be too steep, too dry, too wet, or prone to erosion, or else to occupy fragile public lands or areas that are vulnerable to flooding, high tides, and storm surges. Moreover, the lack of tenure security limits people's choices and diminishes their capacity to recover and rebuild when a disaster strikes.

However, even with the growing awareness on climate change, there is still limited understanding and response in addressing the nexus of the impacts of climate change, social and policy responses, and need for land tenure security.

For one, the links between land tenure and climate change may not be obvious. Tenure, or the relationship between people with respect to land, has traditionally been viewed from the perspective of an individual, family or community. Climate change, on the other hand, is often viewed from a global perspective and is attributed to the collective or human use or abuse of natural resources. The connection often becomes clearer only when viewed from a broader perspective, a panoramic view from which relationships can be observed (as cited in Te, 2021).

Also, **much of climate change discussions remain under the exclusive realm of scientists and governments.** As cited in Limon, 2009:

> *"One main failing in climate diplomacy is that the phenomenon has often been viewed as a scientific projection "... a kind of line graph stretching into the future with abstract measurements based on parts per million, degrees centigrade or centimetres .... The international community has largely failed to translate the important and hard-won scientific consensus into an equally compelling vision of how the consequences of global warming are being felt by people and communities around the world. In other words, the world has failed to humanize climate change."*[1]

Meanwhile, poor people are often left out of climate change discussions; among the poor, those without land or near landless are the most marginalized and voiceless, and thus, land tenure issues are rarely addressed or tackled. They are often treated as causes and passive victims, rather than as potentially active responders in the fight against climate change.

What this paper is about

There is still limited literature and understanding on the links between land tenure and climate change. Much of current literature focuses on the *macro* and *physical* impacts of climate change on land, with insufficient attention given to the *social* impacts of climate change from the perspective of poor people, and how it affects their access to livelihoods, social relationships, and security of tenure on the land.

Similarly, climate responses tend to focus solely on the sustainable use and management of land, such as through the establishment of protected areas, reforestation programs, wildlife sanctuaries, and tree plantations. Oftentimes, not enough concern is given to the tenure and land rights of communities likely to be affected by such programs. Also, in the planning of adaptation and mitigation programs, those without legally documented property rights are often left out of the discussions.

While there has been increasing recognition of tenure security as a factor that increases the resiliency of people to the effects of climate change, literature and evidence are still limited; and the link of tenure and climate change needs to be further studied, illustrated, and established.

There is emerging interest among CSOs and land rights advocates in linking land rights with climate change. Yet even among land rights advocates, the topic is still relatively new, understanding is limited, and documentation is scant.

This paper seeks to enhance the understanding and analysis of the links between land tenure, land use and climate change. It is NOT an academic paper, but rather a descriptive paper that draws

[1] Quoting from a statement of Maumoon Abdul Gayoom, President of the Maldives, at the Annual Meeting 2008 of the Global Humanitarian Forum on 24 June 2008.

mainly from secondary sources. It features seven case studies written by CSOs from Bangladesh, Cambodia, Indonesia, India, Kyrgyzstan, Nepal, and Philippines that seek to:

- describe how the lack of tenure security and resource rights increases the vulnerability of the rural poor, and reduces their capacity to cope with the changes brought about by climate change; and,
- illustrate how improved tenure security, resource rights and land governance can increase the capacity of poor people to adapt to climate change.

This paper also builds from two earlier studies by ANGOC (see *References*):

- *Discussion Paper: Climate Change and Land Tenure in the Philippines: A scoping of legislations, recent field experiences, and their implications for land tenure and climate change policies* (November 2017) prepared for the project *"Mainstreaming Voluntary Guidelines on the Responsible Governance of Tenure (VGGT): Philippines"* supported by the Food and Agriculture Organization (FAO) of the United Nations, and
- *Climate Change, Natural Disasters, and Land Tenure: Case of Typhoon Sendong (Washi) in Cagayan de Oro City, Northern Mindanao, Philippines* (February 2018) prepared in cooperation with RMIT University, Melbourne for the "*Research Study on Land Tenure, Climate Vulnerability and Adaptive Capacity"* supported by the Global Land Tool Network (GLTN).

This paper is presented in five parts:

- Understanding the links: climate change and land tenure in the Asian context;
- Natural disasters: land issues in vulnerability and resiliency;
- Land tenure rights in climate change adaptation and mitigation;
- Towards a rights-based approach to climate change; and,
- Ways for moving forward.

Understanding the links: climate change and land tenure in the Asian context

Land rights may be held individually, or collectively in a family, a group, a community, or the State. Land may also be part of open-access regimes where specific rights are assigned with little or no operational tenure rules with respect to resource use and management (UN Habitat, 2019).

Land tenure refers to the way in which interests in land are held by people or entities such as the State. In practice, land tenure involves the legal, customary or religious relationships among people with respect to land and natural resources (Mitchell and McEvoy, 2019). Land tenure systems consist of rules invented by societies to regulate behavior in relation to land. They define how rights to land are allocated within societies, the security of those rights, and how they are enforced (FAO, 2002).

Land tenure rights, therefore, influence the way that land and natural resources are used and can impact directly on the environment and on climate change. Inappropriate land development can exaggerate climate impacts.

BASIC CONCEPTS AND TERMS

Climate change is defined as "any change in the climate over time, whether due to natural variability or [...] human activity." However, the United Nations Framework Convention on Climate Change focuses specifically on climate change that is "attributed directly or indirectly to human activity" and is "in addition to natural climate variability."

Hazards, disasters and risks. A ***hazard*** refers to a severe or extreme event such as a flood, storm, cold spell or heatwave, etc. which occurs naturally anywhere in the world. A hazard only becomes a ***disaster*** when human lives are lost, and livelihoods damaged or destroyed (UNDRR, 2020). ***Risk*** refers to the level of exposure of people to the potential harms of hazards, such as living in a flood-prone area.

Mitigation refers to measures aimed at minimizing the extent of global warming by reducing emission levels and stabilizing greenhouse gas concentrations in the atmosphere.

Adaptation refers to adjustments in natural or human systems in response to actual or expected climate stimuli or their effects, which moderate, harm or exploit beneficial opportunities. In other words, they are measures to reduce harm and (to) strengthen the capacity of societies and ecosystems to cope with and adapt to climate change risks and impacts (as cited in Brookings Institution, 2014).

Resilience is the "capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation" (IPCC, 2014).

Vulnerability to climate change is the "degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity" (IPCC, 2001).

Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land (and natural resources). Land tenure systems determine who can use what resources for how long, and under what conditions (FAO, 2002).

Tenure security is the certainty that a person's rights to land will be recognized by others and protected in cases of specific challenges. People with insecure tenure face the risk that their rights to land will be threatened by competing claims, and even lost due to eviction (FAO, 2002).

Disaster risk reduction (DRR) refers to a set of measures that prevent or reduce the damage caused by natural hazards such as earthquakes, floods, droughts, and storms. These include, for instance, early warning systems; hazard mapping, vulnerability analyses and planning; building codes; and, training of first responders. At farm or household level, these may include diversification of livelihoods or protection measures against strong winds and floods (as adapted from Caron, et. al., 2014).

On public lands, the issuance of land leases and licenses define the rights holders, uses of the land, rights and obligations of users, and the duration for the exercise of rights. For instance, the issuance of licenses and leases for mining, quarrying, logging, or large-scale plantations can lead to massive deforestation, siltation of rivers, and toxicity of the soils (from industrial residue and wastes). Extractive activities can cause the release of greenhouse gases (GHGs) that contributes to climate change; it also increases the exposure of people in the area to the impacts of natural disasters (e.g., mudflows, soil erosion, flooding, and strong winds) when they occur.

The over-exploitation of forests, especially in open access regimes, can also lead to deforestation and soil erosion. Settlers, smallholder farmers, and those without tenure security face limited land-use options and might focus on exploiting forests to meet their immediate needs (e.g., through charcoal-making or timber-cutting) rather than on protecting and ensuring the long-term sustainability of the resource. Poverty and tenure insecurity make them reluctant to make long-term investments that could improve their overall resilience.

Today, Asia and the Pacific experience the highest frequency and magnitude of extreme weather events. Around 72 percent of the total frequency of intense natural disasters was recorded in Asia and Pacific between 1971 to 2010 (Thomas, et al., 2013). Further, in 2006 to 2015 data of the *Annual Disaster Statistical Review Reports,* six of the top ten countries most hit by natural disasters are in Asia including China, India, Philippines, Bangladesh, Pakistan, and Nepal (Guha-Sapir, et al., 2016).

Not only are countries in Asia the most hit by natural disasters, but they are also considered the most vulnerable. The high frequency and impact of disasters in Asia is largely due to the size of the continent and landscapes that represent a high risk of natural hazards, such as river basins, flood plains, and seismic fault lines. Additionally, there are high population densities in many disaster-prone areas of the continent.

In the State of Kerala, India, an unprecedented amount of rainfall in August 2018 caused widespread flooding and landslides that left 400 dead and 5.4 million people affected, covering one-sixth of the State's population. Land use changes brought about by urbanization and overdevelopment was seen by local people as the major reason for the disaster. In short, the natural factors of the disaster event, combined with anthropogenic factors contributed to the impact of the floods in Kerala (see Box 1).

Many Asian countries also have large growing populations with a high proportion of poor people living with tenure insecurity which lessens their resiliency to the adverse effects of disasters. Coupled with land degradation, poverty reduces the resiliency of communities to the effects of climate change. In developing countries of Asia, poverty incidences are high and remain prevalently rural and agricultural. Rural poverty is strongly linked to the lack of access to land – due to landlessness, insecure tenure or contested land rights.

Poverty and the lack of tenure security, heighten the risks of people to the effects of natural disasters and climate change. To put disaster risk in its proper perspective, approximately an equal number of people are exposed annually to tropical cyclones in Japan and the Philippines. Yet, a cyclone of the same intensity would kill 17 times more Filipinos due to the country's greater level of vulnerability, including poor standards of housing and infrastructure, and the numbers of poor people settled in at-risk areas (IDMC, 2013).

BOX 1. THE 2018 FLOODS OF KERALA, INDIA

Kerala is categorized as a multi-hazard prone State in India due to its geographical and topographical characteristics located at the extreme southern tip of the Indian subcontinent. It is a gateway of the South-West (June to September) and the North-East (October to December) monsoons in India. The two monsoon seasons, in addition to summer rains, pour an average annual precipitation of around 3,000 millimeters in Kerala (equivalent to 286 days of rain in a year). The mountainous topography and rivers increase the risks of floods and flashfloods, landslides, and mudflows.

In June to August 2018, Kerala experienced an unprecedented amount of storm rainfall in decades, with the State receiving 42 percent above-the-normal rains during the entire monsoon season. Between 1 and 19 August 2018 alone, Kerala received 164 percent more.

Natural and biophysical factors of the disaster event, combined with anthropogenic factors contributed to the impact of the floods in Kerala.

Natural events. The continuous high intensity rains resulted in widespread flooding. "Rains in August forced the release of excess water from dams across the State, aggravating the flood impact." Landslides occurred in more than 500 locations in the mountainous districts of Idukki and Wayanad. The said events left more than 400 deaths and 5.4 million people affected, covering one-sixth of the State's population.

Man-made causes. The alteration of terrains (due to urbanization and changes in land use) was seen as a major factor for the unprecedented flooding and landslides in August 2018. The cutting of slopes and removal of soils facilitated changes in the patterns of runoffs and the stability of slopes.

- *Unregulated construction and indiscriminate quarrying and sand mining.* Geoscientists who conducted a ground survey following the landslide events in Kerala observed that most of the landslides and all the houses lost in landslides occurred in areas where recent construction had happened and where mountain slopes were unstable. The construction boom since the mid-1970s and the growth of real estate in Kerala also led to unregulated quarrying and mining, and indiscriminate extraction of sand in rivers, causing the erosion of riverbanks and reducing the capacity of the watershed to regulate surface runoff during floods. Construction of dams was also rampant, with 58 dams in the State adversely affecting water systems and forests.
- *Reclamation of wetlands and paddy fields.* The reclamation of wetlands was pronounced in Kerala to keep up with the demands for industry, infrastructure development, and housing. In Thrissur District, nearly 50 percent of wetlands and paddy fields have been reclaimed since the 1970s. The Vembanad Wetland, the longest (96 kilometers) water body in Kerala and in India, lost 10.72 percent in area from 1966 to 2012. Most of the reclamation occurred in Kochi City, the most densely populated city in the State. Wetlands act as a buffer between the ocean and the land. Removing this natural buffer makes the land easily flooded by the oceans/seas.
- *Encroachment in forests and riverbanks.* Satellite data between 1980 and 2016 indicated a 3.6 percent loss in forest cover – the third highest among Indian States. In Wayanad District, the Kerala State Biodiversity Board (2018) reported that banks of Panamaram River and Mananthavadi River "had collapsed due to loss of considerable amount of natural vegetation along the river banks due to encroachments and other unsustainable land management practices."

Source:
South Asia Rural Reconstruction Association (SARRA). (2021). *Rising from the Floods: Case Study on Climate Change, Land Tenure Rights and Resource Management in Kerala, India.* SARRA, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

The link between land tenure insecurity and risks due to natural disasters is perhaps best illustrated by the people who currently live on Bangladesh's river islands, known as *chars* (See Box 2). Over a million people are displaced each year due to river flooding and riverbank erosion brought by the annual monsoons, and this is likely to become more significant under climate change, as rainfall both increases and becomes more erratic, and the melting Himalayan glaciers alter river flows (EJF, 2021).

In the coming years, climate change will heavily impact most heavily on agriculture – as rural livelihoods and livelihood assets become more exposed and vulnerable to changes in rainfall patterns. One of the most outstanding impacts of climate variability and extremes is the recent rise in global hunger and severe food crises by affecting all dimensions of food security – food availability, access, utilization, and stability (FAO, et al, 2019).

In Asia, climate change will adversely affect the agriculture sector as it will significantly undermine crop production and threaten food security, even after adaptation and productivity improvements have been accounted for (ADB, 2012).

Most of the world's poor and food-insecure people are rural and dependent on agricultural production and income for their livelihoods. They are directly exposed to climate risks that affect agricultural production. Among all climate change impacts, drought has been the most destructive force for agriculture, causing USD 37 billion in crop and livestock production losses from 2008 to 2018. But **while drought continued to be the main disaster stressor for crop and livestock at the global level, floods and landslides had the largest impacts in Asian agricultural system** (FAO, 2021a).

According to the Global Climate Risk Index 2019, South and Southeast Asia are the most at risk and vulnerable to the effects of climate change. In these regions, drought is more recurrent in

Box 2: *Char* lands and the annual monsoons of Bangladesh

The current effects of the annual monsoon season in Bangladesh illustrate the potential impact and complexity of land tenure issues that come with climate change. The country lies within the deltas of four powerful river systems that drain a 625,000-square mile area of South Asia that includes much of the Himalayas. During the monsoon months, an enormous amount of water flows over relatively flat lands – creating new channels, eroding riverbanks, and shifting silt deposits. In a country with high population densities, the social impact is immense. Over a million people a year shift their place of residence as their houses are washed away, or to take advantage of newly created lands. As rivers expand and shrink, new land bars or riverine islands are created. These emerging riverine lands are known as *char* lands – literally, on shifting sands.

By law, any land lost to river erosion and on which accretion occurs would be owned by the government and declared as *khas* land for redistribution to poor and landless families. However, the land is often taken away from landless people by politically influential local elites and powerful farmers or *jotedars*.

Many affected families are forced to migrate. Up to 50 percent of those now living in Bangladesh's urban slums may be there because they were forced to flee their rural homes as a result of riverbank erosion.

Poor people have few options but to cope. As a local saying goes: "We just have to keep rolling like silt" *(Quizon, 2013)*.

Bangladesh and Nepal, and Cambodia and Vietnam, respectively (Miyan, 2014). On the other hand, from 2000 to 2016, the top three Asian countries with the highest frequency of flooding are China, India, and Indonesia (Ashraf, et al., 2017).

In Asia, despite rapid urbanization, poverty remains largely rural and agricultural. It is home to 70 percent of the world's indigenous people, and accounts for an estimated 87 percent of the world's small farms that depend on household labor and cover less than two hectares of land.

Poverty in Asia is closely associated with landlessness and the lack of tenure rights. In Bangladesh, almost 60 percent of the total households are functionally landless households and own only 4.2 percent of the land. Further, smallholders in the Philippines who depend on forests for their homes and livelihoods (an estimated 20 percent of the total population) have no legal tenure rights over forestlands.

Natural disasters: land issues in vulnerability and resiliency

Sectors that are without security of tenure and who are politically weak, face the greatest risk to the impacts of climate change and natural disasters. They also have the least capacity to cope with, and are often last to recover and rebuild after disasters. Many displaced families whose needs are not addressed are likely to fall into cycles of vulnerability.

Poverty pushes people to live in vulnerable areas and conditions. Poor families may be forced by circumstances to occupy areas that are vulnerable to flooding, high tides, or storm surges. They may cultivate hillsides that are prone to landslides and erosion. Others are compelled to make a living in harsh environments that are too dry, too steep or too remote, with lack access to basic services.

Also, informal settlements may be densely packed, or far and remote, with housing made of temporary and semi-permanent materials, with poor roads and unplanned infrastructure which hampers reaction or response in cases of emergency. **The lack of tenure reduces the incentives and capacity for people to invest in housing improvements or to modify their living environment to protect their homes against floods, landslides, and disaster**. Thus, many poor households fall into a constant cycle of disrepair and rebuilding after each disaster.

A case in point is when Typhoon Washi hit Northern Mindanao, Philippines in December 2011. Heavy rainfall in the highlands caused flash floods and landslides that sent mud and logs crashing down on poor communities near the river, mountain, and sea where over a thousand people were immediately killed overnight. Those living near riverbanks and low-lying areas were most affected, including large numbers of informal settlers and neighborhoods that were part of the city's socialized housing program (Franta, et al., 2016).

And while the poor are aware of the risks to their homes to natural hazards, many are forced to accept or ignore such reality, given their lack of options, and in order to carry out their livelihoods. In a case study conducted by FAO (2010) in Bicol, Philippines, a region frequently hit by typhoons, it was evident that the poor, vulnerable, and food-insecure households show high-risk-taking settlement behaviors. Poor households reside in disaster-prone areas perceiving them as open access, low cost, within close proximity to livelihood, and entailing low transport cost. Expansion of settlements with no security of tenure in these high-risk areas gradually occured in recent years (FAO et al., 2010); therefore, increasing the occurrences of displacements brought by disasters.

Some natural disasters (erosion, landslides, flooding, salinization) can directly result in a significant loss of land. When this happens, there are serious consequences in terms of the loss of livelihoods, destruction of homes and displacement of populations. It forces people to migrate, and to cope

Box 3. Coping with Cyclone Aila and its Impacts on Land, Livelihoods and Displacement, Bangladesh

In May 2009, Cyclone Aila hit the southwest coast of Bangladesh severely affecting the communities in Shyamnagar *Upazila* of Satkhira District and Koyra *Upazila* of Khulna District. Though Aila was a relatively weaker typhoon (Category 1), its damage surpassed that of super typhoon Sidr (Category 4) in 2007.

Cyclone Aila affected 2.3 million people and left 325 people dead in the two *upazilas*. Prolonged waterlogging caused salinity in both water and soil – damaging 90 percent of livelihoods in the southwestern coastal communities. The tidal surge height of 10 to 13 meters washed away houses, livestock, and crops, causing homelessness among the residents.

Impacts on land and tenure

- Cyclone Aila hit the southwestern region at a time when the government was trying to rehabilitate the area after the damage caused by a previous cyclone (Sidr) that struck in 2007.
- A significant portion of the populations of the Satkhira and Khulna Districts had been already suffering from extreme land tenure insecurity.
- The cyclone devastated the farms just before the harvest season, leaving the farmers with massive financial losses. A 2019 follow-up study on the socio-economic impacts of Cyclone Aila found that the numbers of functionally landless and marginal farmers significantly rose after the devastation.
- Some 40 percent of households in Satkhira and Khulna Districts (landless and extremely land poor) migrated due to homelessness and financial vulnerability, but the lack of employment provided the major push for households to leave their villages.

Coping strategies

- In the immediate aftermath of the cyclone Aila, displaced people made use of the rooftops, embankment, highways, relief camps, schools, mosques, and houses of relatives as temporary shelters.
- Close to 14 percent of both migrant and non-migrant households reduced their expenditures on health and education. A possible reason could be that the affected households sent their children to work; thus, the disaster decreased children's schooling. Previous studies also found that in both rural and urban households, children's school attainment decreased after a disaster.
- These short-term strategies were generally inadequate in minimizing the impacts on people. Short-term strategies and insufficient external assistance failed to reduce the hardships of those affected, which led to out-migration.
- During the cyclone, the severe storm and prolonged water logging resulted in increased salinity in both water and soil causing unproductivity of agricultural lands and thereby threatening farmers' livelihoods. This situation forced some farming households to diversify their sources of income and agricultural practices (e.g., crop diversification). Aila-affected coastal communities were also encouraged to diversify crops by growing saline water-tolerant crops and vegetables (pumpkin, ladyfinger, eggplant, and spinach) and those that require a minor irrigation system.

Source:

Association for Land Reform and Development (ALRD). (2021). *Displacement, migration, land loss and climate change: The case of Syamnagar and Koyra saub-districts of Bangladesh*, ALRD, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

by shifting their livelihoods, while facing increased vulnerability and rising competition over their new living spaces. This is illustrated in the 2017 ALRD Study conducted in the Bangladesh's coastal areas of three districts –Satkhira, Khulna and Noakhali – which were heavily affected by Cyclone Aila in 2009 (see Box 3). The case also argues that, **in some instances, it may be more meaningful to work with the climate migrants at their destinations, to empower and integrate them at these locations rather than aiding them to return, which may be a possibility only if there is available land or work opportunity at their area of origin** (ALRD, 2021).

In Bangladesh, current disaster management programs often fail to give due attention to the importance of land tenure issues, which increase poor people's vulnerability to disasters. Similarly, post-disaster rehabilitation programs are often ineffective at supporting landless and affected households in rebuilding their livelihoods (Shaf, 2021).

Calamities also cause displacement *indirectly*, as land is submerged or eroded, landmarks are erased, known boundaries disappear, and legal documents are destroyed – thereby causing local land disputes or worsening existing ones. They create opportunities for land speculation and land grabs as a result of population displacement. Existing land tenure relationships are brought into question, such as tenancy rights when crops and landscapes are completely destroyed. In some documented cases, this causes the eviction of tenants, or the sale of farmlands and produce without their knowledge or agreement (see Box 4).

Families also lose important documents that may be difficult or costly to reconstitute. These include not only land titles, land certificates and tenancy contracts, but also important identity documents such as birth certificates, marriage licenses, registration documents, and proof of education. There are consequences of having lost identity documents, as people could lose out on their entitlements, and face difficulties in restoring their lives and livelihoods.

Moreover, official reports regarding disaster losses focus more on public infrastructure, and do not include the loss of land records and boundaries. Disaster funds do not cover the expenses required by the agencies to reconstitute their records, conduct cadastral surveys, or provide land title reconstitution services for affected families (Eleazar, 2010). This affects the work on rebuilding, as the tasks of delineation and rehabilitation of private parcels are left entirely to private owners. Boundary disputes may arise as parcels are re-delineated via new surveys. In such cases, the reconstruction of property rights requires community participation and recognition, as neighbors help each other in reestablishing the original boundaries.

Holders of secondary rights – including tenants, sharecroppers, pastoralists, and those who lease, use or occupy land – become particularly vulnerable to evictions. They are also often excluded from land information systems. This makes it more difficult for them to recover their rights. Significant amounts of land are not covered by land information systems.

Box 4: Eviction of tenants after the storm

Typhoon Haiyan that hit the Philippines in 2013 was among the strongest tropical cyclones to hit land, in recorded history. In the aftermath of the storm, coconut tenant-farmers in the coastal towns of Guian and Quinapondan, Eastern Samar, were evicted by their landowners as they were unable to pay their lease rentals after the typhoon had damaged their crops. Some landowners also claimed that the share-tenancy arrangement had ceased, since all the crops were destroyed.

Some landlords harvested the fallen coconut trees and sold them as lumber, without giving the tenants a share of the proceeds from the sale of the lumber. Also, some landowners began to sell the lands without the knowledge of their tenants.

Despite being required by law, many tenants have no written contracts. Also, there is no complete database or registry of agricultural lands covered by tenancy or leasehold agreements *(Source: Alvarez, 2017).*

Women are especially vulnerable, especially in cases where they are unable to inherit property and the land is registered under the husband or a male relative. This lack of formal recognition of women's land and property rights also means that a female spouse may not have access to planned relocation or compensation for the loss of property, especially when widowed, separated, or divorced. Also, the needs of women may be ignored in patriarchal societies where the men make decisions regarding migration and relocation. The lack of tenure rights compounds the hardships of women and their dependents in disasters. On the other hand, providing women with formal recognition of property rights can mean that a female spouse and her dependents will have access to relocation options or compensation for property loss.

Natural disasters create opportunities for secondary land occupation and land grabs, due to population displacement. The sudden onset of many natural disasters creates the risk that abandoned land or housing will be occupied by persons other than their former owners or users. This creates tension as former residents and users return to their places of origin. Yet, those who will require adjudication or restitution are more likely to be without adequate and recognized land rights before the disaster, including tenants, informal landholders, and women (UN-Habitat, 2010).

Disasters also provide opportunities for land grabs, especially where entire communities are wiped out or in dire need of rehabilitation. The schemes involve land investors and elites grabbing abandoned land, and using their influence to obtain State concessions, or to negotiate with poor people in distress. Disasters bring about a consolidation of State emergency powers, increase land speculations, that may lead to collusion between governments and private investments for the acquisition and reallocation of land. Disasters expedite and facilitate the "land-broker State," considering "the displacement of large numbers of people without clearly defined land ownership, and can enable private and government land grabs" (Cruz, et al., 2015).

This became evident in some documented cases in Eastern and Central Visayas, Philippines following the onslaught of Super Typhoon Haiyan in 2013 (see Box 5).

In reclaiming affected property, affected households with no secure tenure are likely to have greater difficulty in relocating or reclaiming their original occupied properties following a disaster

(Eleazar, 2010). In some cases, those with no secure tenure may be prevented from returning to their areas, and from repairing and rebuilding their homes, especially if the land is later classified as a "high-risk" area.

Experiences also show that people without secure tenure may lose out on permanent shelter assistance. For instance, shelter programs in response to Typhoon Haiyan that hit the Philippines in 2013 potentially excluded informal settlers and lessees, as the eligibility criteria under the *Omnibus Shelter Assistance* included the need for legal ownership or a guarantee of long-term occupation through the submission of a lease agreement covering a ten-year minimum occupancy over the land to be used to build shelter [2](Alvarez, 2017).

Box 5. Land acquisitions in the aftermath of Typhoon Haiyan in the Philippines

After Typhoon Haiyan hit, reports of developers and powerful elites grabbing abandoned land were widespread. In Tacloban city, Leyte province, the local government headed by a prominent political family prevented reconstruction by informal settlers on land which it owned, supposedly because the site is disaster-prone. However, it was found out later that the national government had expressed interest in purchasing the land to expand the runway of Tacloban's airport to accommodate international flights – a project that would ultimately work to the advantage of the political family (Bradsher, 2013).

In Sicogon Island, Iloilo, local elites in collaboration with a development corporation used the devastation of properties and livelihood of fisherfolks brought on by Typhoon Haiyan, to execute a long-standing plan to launch a high-end tourism hub on the island. After the typhoon, landlords reportedly offered cash incentives and zero-cost relocation for affected households to waive their rights to the land and to permanently vacate the island. Acceptance of these offers would allow them to receive relief goods. Majority of those who accepted these offers were those without titles to the land and who were not eligible for the government's agrarian reform program (Uson, 2017).

In Eastern Samar province, artisanal fisherfolk living near coastal areas, were summarily displaced and relocated after the typhoon. And as they were temporarily relocated, other people came forward to claim some of the coastal areas that the fisherfolk previously occupied, and subsequently applied for a Foreshore Lease Agreement with the government.

In most cases, the poor and vulnerable are forced to fend for themselves when a natural disaster strikes and lands and livelihoods have been permanently destroyed. Rural families may be pushed to migrate to areas where their presence and tenure rights may not be recognized. Climate change can impact both the places of origin for migrants and their destination.

The story of 50 families displaced by floods and landslides and now living in Bategada village of Chure municipality, Sudurpaschim province in Nepal shows how "climate change pushes communities-at-risk to the farthest margin of the economic development, disconnecting them from the mainstream development and planning that aggravates poverty and inequality" (see Box 6 on next page). **And "when climate change discussions fail to put [the concerns of] marginal peasant communities, landless dwellers and indigenous peoples at the center of debates, then they fail to find solutions in a practical way"** (Joshi and Basnet, 2021).

[2] See Guidelines for Emergency Shelter Assistance, December 2014. http://tacloban.gov.ph/guidelines-for-the-emergency-shelter-assistance/#.Wf2xK4gRVc8

The interaction between vulnerability, disaster and resilience is illustrated in Figure 1 (see page 28). Land responses (or the lack of it) may affect people's resilience after a natural disaster.

In many countries, humanitarian efforts aimed at reducing disaster risks and responding post-disaster, have not adequately dealt with land tenure rights and property issues. Inadequate responses appear to be caused in part by a lack of clear understanding of tenure issues in the context of natural disasters, the lack of clear policy, the lack of allocated resources, and the limited capacity of frontline responders to deal with tenure issues.

There is need to undertake risk assessments, clarify ownership of remaining land, or find new land as necessary. Otherwise, these can delay recovery and contribute to residual caseloads of people without access to land after a disaster (GLTN, 2010). The initial response of affected people is to return to their places of origin, to recover their belongings and to re-establish their tenure rights, and to rebuild their homes where possible. Disputes are likely to arise, and this may need immediate mediation and response.

When massive numbers of families need to be relocated and permanently resettled elsewhere in the aftermath of major disasters, several land tenure-related problems are often encountered, and need to be addressed.

- *Need for safe lands for relocation*. There is often a lack of suitable lands for relocation in the wake of sudden disaster events such as typhoons, floods, landslides, or storm surges that may destroy wide areas or landscapes. Years after the disasters, many may remain waiting for permanent relocation, in temporary shelters, or in high-risk zones.
- *Eligibility criteria for relocation*. Where available land or resettlement areas are scarce, the holders of *secondary rights* are sometimes deemed ineligible for relocation assistance and are excluded from permanent resettlement sites. These include boarders, renters, lessees, tenants, and new migrant families in an affected site.
- *Need for livelihoods and utilities in relocation communities.* For people who are forced to relocate, sources of income are limited, and their tenure status is insecure. Some may relocate in hazardous areas or may lack basic services and facilities. For those who need to travel to their former areas to make their living, a significant portion of their income goes to transportation costs. Thus, many opt to remain in high-risk areas even if given a chance to relocate.

The lack of tenure security limits people's choices and diminishes their capacity to recover and rebuild from a disaster. If not adequately addressed, the insecurity of tenure may create cycles of vulnerability. Displaced persons with no rightful claim to land are likely to: a) fall deeper into poverty with unrestored livelihoods; b) move back into their former areas of displacement or relocate to unsafe land, or c) form residual caseloads of landless groups without access to land and permanent housing.

Displacement impacts on the very ability of people to resume their livelihoods. They are forced to take on unfamiliar jobs or to resume their livelihoods in new places with no social networks or familiar forms of support. Thus, displaced people often return to unsafe lands because to them, the advantages of disaster-prone areas (i.e., being near sources of livelihood, low transport costs) are perceived to outweigh the risks.

Box 6. Migrants after a Disaster: Bategada village in Chure rural municipality, Nepal

In August 2008, the once arable land of Khairala village in Chure rural municipality experienced week-long heavy rains, causing floods and landslides that washed away houses and destroyed lands used for agriculture and livestock. Some 50 families were forced to leave their ancestral land in Khairala village, along with their long-established community ties and social networks. With damaged homes and fields, and with no shelter and food available, they migrated to the remote village of Bategada in Chure rural municipality, as they had no better option.

Bategada village lies on forest land; it is remote and almost inaccessible. Families here rely on subsistence farming which barely provides for their daily needs.

- Income opportunities are limited, compared to Khairala village where families used to engage in orange and vegetable production.
- The families received no support from either the government or CSOs for their livelihoods.
- The rights of the community to gather forest resources such as firewood and fodder in Bategada have been strictly regulated since the area lies in a national forest.

The 50 migrant households from Khairala village have been cultivating lands in Bategada for 13 years following the disaster of 2008, with no security of tenure. As the village lies within a national forest, residents are not eligible for private land ownership. Without legal status on the land, accessing public services and facilities has been a serious challenge. The families have been living in constant fear of forceful eviction from their cultivated lands.

Bategada village belongs to the territory of Chure rural municipality but has very loose ties with its local government, as it takes three days' walk to reach the municipal office. The community is much closer (five kilometers) to Gauriganga municipality. The Chure and Gauriganga municipalities have an ongoing boundary dispute, and this adds to the fear of eviction among the 50 households.

As the village is isolated and remote, their representation in meetings at municipal or ward level has been rare, and their voices remain unheard.

Lessons and insights

- In Bategada, the households use community consensus in allocating land use rights, but these customary arrangements are yet to be legally recognized.
- Given their lack of formal land rights, people have been unable to exert political pressure with the municipal government for development assistance for the community. The community is trapped in a vicious cycle of landlessness, poverty, and food insecurity while facing recurrent disaster risks. The lack of a land certificate disqualifies the community from claiming basic public services (electricity, agricultural inputs and services); this reduces the community's disaster resiliency.
- Without local government recognition of community land and resource rights, the Bategada people are experiencing discrimination and exclusion from policy discussions and decision-making. With this, the adaptive capacities of the community is being eroded.

Postscript: In April 2020, the Land Issues Resolving Commission (LIRC) was established to formalize the land rights of landless and people with informal tenure across Nepal. With this, the people of Bategada village were able to file claims for land distribution and land rights recognition. Of the 50 migrant households, half registered themselves as "landless", and the other half as "informal settlers"– for recognition by the LIRC under its ongoing land registration process.

Source:

Joshi, D. R. and Basnet, J. for Community Self Reliance Centre (CSRC). (2021). *When climate change disaster strikes: The Case of Bategada village in Chure rural municipality, Nepal*. CSRC, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

The ability of a family to recover is typically associated with the availability of resources. When poor households that are forced to finance their own recovery and reconstruction, may find themselves in a constant position of disrepair, and may not be able to recover without external assistance.

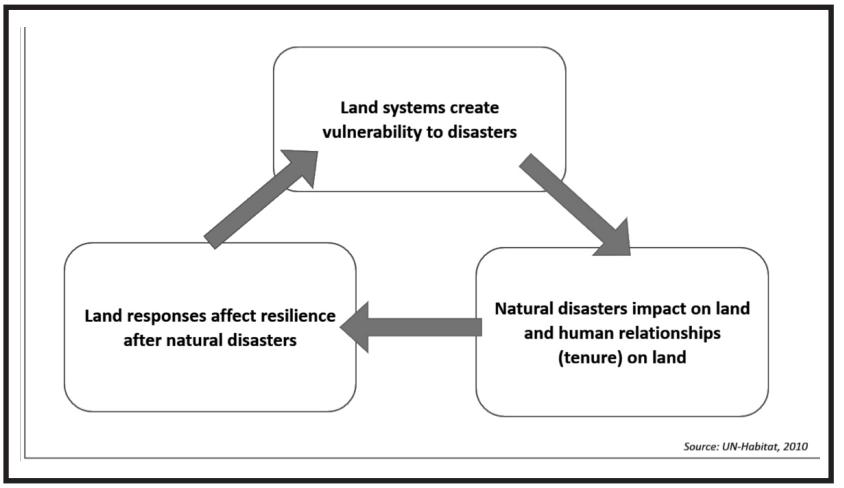

Figure 1. Understanding post-disaster land issues

Finally, natural disasters and extreme weather events can intensify conflicts over land. They impact people's livelihoods and assets, amplify the competition for land, and increase risks of violent incidents by amplifying existing inequalities. As such, climate change can be considered a "threat multiplier" of conflict (EJF, 2017).

Some climate-induced disasters (e.g., erosion, inundation of settlements, soil salinization, and desertification) may cause lands to be uninhabitable and may force poor people to relocate to occupied public areas, thereby causing disputes with existing residents. Drought and shifts in rainfall patterns may cause traditional pastoralists to veer away from their migratory routes and bring them into conflict with farming communities. The loss of farms due to typhoons and floods may force farmers to shift to livelihoods that offer immediate and short-term returns, such as charcoal-making, timber harvesting or quarrying – in ways that bring them into conflict with existing users of forests and public lands.

Land tenure rights in climate change adaptation and mitigation

Land tenure security is crucial for climate change adaptation and disaster prevention. When tenure is insecure, the constant threat of eviction contributes to the increased vulnerability of households. It discourages households from spending on more durable materials; housing is often self-constructed and made from low-quality materials.

But when there is tenure security, families invest better in their homes and farms. They are more willing to make long-term investments in durable structures such as better housing, embankments, terraces, dikes, canals, and drainage systems that lessen their exposure to damages and risks. Also, the specific type of tenure (i.e., being an owner, lessee, tenant, or agricultural worker) determines the range of options that farmers have in managing their farms – the farming system, irrigation, use of inputs, choice of crops, or when to plant. For example, tenant farmers with short-term leases may not use soil protection measures, plant trees or improve pastures. Land tenure can also impact a farmer's risk management decisions through indirect effects on his/her risk perceptions, risk attitude and access to government services.

Women's adaptive capacity is substantially undermined when their right to land is denied. **Securing land tenure rights for women is key for their social and economic well-being and in climate change adaptation.** Women's empowerment is crucial in challenging existing power relations, cultural practices, knowledge systems, and adaptive strategies in ways that can improve protection of the environment and overall resilience to natural disasters. Women's concerns for nutrition and food security, economic stability, security of shelter, health, safety, and family well-being all represent significant areas for adaptation (UN-Habitat, et al., 2019). When productive assets such as land tenure rights are placed in the name of women, this enhances their tenure security and allows more benefits to flow to their children and dependents (ANGOC, 2017).

Secure land tenure enhances resiliency insofar as it contributes to "improved food and water security, more sustainable livelihoods, reduced forced and unplanned human mobility that leads to landlessness, reduced environmental degradation, less poverty, reduced conflict over land and resources, etc." These increase the resiliency of families and communities in the light of shocks and stresses brought by natural disasters and climate change.

When adaptation is applied at individual or family level, the scale is often limited by the amount of land that one has under control. Also, as individual adaptation is bottom-up, the outcome is the result of a multitude of small decisions that are made individually. Each household will implement adaptive actions depending on its location and use of the land, farming practices and crops, climate changes felt, and opportunities available. The result is an effective patchwork of varied responses across a landscape, rather than a uniform response (Ingram and Hong [Eds.], 2011).

Oftentimes, adaptation needs to be implemented in a larger scale, for which some level of organization is required. Land tenure security is a key factor that encourages people to protect and sustainably manage larger landscapes and forests on which their homes and livelihoods depend. A common example is the establishment of community forests, where communities are given user rights to forests, from which they grow food, gather resources, and obtain income. In turn, the families protect and manage forests from where they draw their household needs and livelihoods. In Cambodia, one such case is the establishment of the Rokha Community Forestry (CFo) in Pursat province, which also enabled forest dwellers to participate in the Commune's

Box 7. Village-Level Community Forestry of Khleng Meang village in Pursat province, Cambodia

The forest in Khleang Meang village, Anlong Thnoat commune, Krakor district, Pursat province supports the needs of 80 percent of the 74,222 households in Krakor district, by providing water for eco-forestry, fisheries, and agriculture. However, the area has been under contestation with the presence of an Economic Land Concession and a private land within the forest. The Anlong Thnoat commune also suffers from many natural disasters such as drought, strong winds, storms, floods, outbreak of animal disease, and fire, which are all blamed in part on the changing climate.

With support from STAR Kampuchea and the Provincial Forestry Administration of Pursat, the Rokha Community Forestry (CFo) was established in 2017. Forest dwelling families were granted 47 hectares (part of the 500-hectare forestland within Anlong Thnoat commune) to manage through community forestry.

The establishment of the Rokha CFo allowed the families to participate in the commune's climate change adaptation and mitigation action planning. The support provided to families included the provision of climate-resilient seeds, technical assistance for poultry farming and animal healthcare, construction of ponds and restoration of water wells. For flood response, the plan for Anlong Thnoat called for the construction of a canal and reconstruction of the water gate.

The Rokha CFo plants new trees every year. Around 1,500 trees had grown in the endangered forest (around 10 hectares) inside the Rokha CFo because of increased vigilance against illegal logging.

The Rokha CFo's 15-year Community Forestry Management Plan (CFoMP) has been prepared. Meanwhile, Rokha CFo members benefit from the collection of non-timber forest products.

Source:

Te, S. for STAR Kampuchea (SK). (2021). *Climate Change, Land Tenure Rights, and Resource Management in Cambodia: The case of Rokha Community Forestry in Khleang Meang village, Anlong Thnoat commune, Krakor district, Pursat province.* SK, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

climate change adaptation and mitigation action planning (see Box 7). In fact, studies comparing deforestation rates in protected areas and community-managed forests suggest that deforestation rates are lower, with less variation in deforestation rates in community-managed forests compared to protected forests (IPCC, 2019; Porter-Bolland, et. al. 2011).

Indeed, over the past few decades, increasing emphasis has been placed on the practice on community-based approaches to sustainable use and management of natural resources. These include various approaches on social forestry, community-based natural resource management (CBNRM), joint forest management, participatory conservation, as well as specific approaches such as the Indigenous Community Conserved Areas (ICCA).[3] They all involve combinations of legal and policy reforms, and they emphasize decentralization, community organizing and mobilization, collective decision-making, equity and access, and resource conservation.

However, the range of community approaches vary widely across countries, especially in relation to the specific State powers that are devolved to communities with regards to: a) resource governance, self-regulation, and the adjudication of resource conflicts; and, b) the level of tenure rights given to local communities over their local domains.

Oftentimes, State powers are devolved only from *national to local governments* (devolution of administrative functions), or *from States to the private business sector* (thru private concessions

[3] ICCAs are defined by the International Union for the Conservation of Nature (IUCN) as "natural and/or modified ecosystems…voluntarily conserved by indigenous peoples and local communities…through customary laws or other effective means."

and joint management schemes). However, the kind of devolution that builds up resilience of the poor are those that are directed to *groups and communities* (e.g., women's associations, farmer cooperatives, user groups, indigenous communities). The success of decentralized natural resource management initiatives depends on the increased participation and empowerment of community members themselves, and not only of local leaders and elites (Quizon, 2011).

In Kyrgyzstan, local communities play a central role in the planning and management of the country's pasture, forest and water resources and are seen as key players in the rapid response to, and prevention of natural disasters from climate change. The approach involves the organization of "user groups" or sectors responsible for the planning, use and management of pastures, and of irrigation systems. The functioning of these pasture user associations and water user associations is enshrined in national laws of the Kyrgyz Republic. The State's promotion of informal social institutions (i.e., pasture users) along with the recognition of tenure rights enables a synergy of approaches between the traditional nomadic lifestyle of pastoralists and modern approaches to land management. This in turn increases the ability of the poor to adapt to climate change, and to contribute to its mitigation. Meanwhile, joint forest management is carried out with the participation of local governments and local communities through the lease of forest land, and community forestry (see Box 8).

There are no standard approaches; strategies must adapt to circumstances. The key is building resilience by maintaining healthy and diverse landscapes, diversifying production systems, strengthening community institutions, and improving land tenure security. Instead of centralized control, local efforts should be multiplied a thousand-fold by involving communities in managing natural resources, helping people acquire secure tenure to land (including property rights), improving access to markets, and strengthening the quality of governance.

Some long-term climate change adaptations, such as the task of protecting the upland watersheds, may extend across several political jurisdictions, making comprehensive management policies difficult to develop and enforce. Thus, this will require multi-stakeholder solutions that involve communities, government, civil society, and the private sector.

A case in point is when Typhoon Washi (Sendong) struck Northern Mindanao, Philippines in December 2011. Torrential rains in the uplands led to the sudden swelling of two river systems that caused catastrophic flooding downstream. Illegal logging, small-scale mining, timber poaching and quarrying in the uplands had triggered erosion, landslides and flooding (Ravanera, 2017). This illustrates how watershed management remains a major challenge in most countries where settlements are located on plains between the coast and upland water catchment areas.

The event forced different stakeholders to adopt a *landscape governance* approach[4] while negotiating arrangements for protection of the watershed. In this context, the experience of

[4] *Landscape governance* relates to how decision-making addresses overlapping claims, as well as shared interests by different stakeholders in a given *landscape*.

Box 8. Role of local communities in managing pasturelands and water resources in Kyrgyzstan

On pastures. Since the 1990s, over half of the pasturelands in Kyrgyzstan have been degraded due to the various pressures and irrational management of the pastures. Grazing methods were unsystematic, resulting to grass deterioration, number of livestock was beyond carrying capacity, and traditional knowledge and pasture management were almost forgotten.

In 2009, the Law of the Kyrgyz Republic "On Pastures" was enacted providing for the transfer of the rights of planning, use, and management of pasture resources from the State to local communities. Pasture users and local communities formed Pasture Users' Unions (PUUs) and adopted the community-based approach to pastureland management – facilitating their engagement in community discussions and planning. This has helped to ensure that the community-based pasture management plans (CBPMPs) are based on traditional management approaches – which includes the rotation of pastureland use by season to allow the recovery of the soil and plants.

The creation of PUUs has also enabled for the practice of long-term planning, unification of pasture users, improved joint efforts to prevent natural disasters and address emergency situations, and mutual understanding and support among rural residents on the use of natural resources and the associated conservation of biodiversity.

***On forests and agroforestry*.** In 1998, the management of forest resources was decentralized under a new National Forest Policy that sought the involvement of local communities through community-based forest management (CBFM) and joint forest management (JFM) arrangements. Forest lands were leased out to communities, as a strategy to increase the ecological and resource potential of forests, and to improve their rational use. Today, there are about 25,000 lease agreements for State Forest Fund (SFF) plots.

On irrigated agriculture and water management. After independence in 1991, many State and collective farms were dissolved affecting the irrigation of the 75 percent of the country's irrigated lands then. In 2002, the Water User Law was enacted defining the roles of Water User Associations (WUAs) in managing off-farm and on-farm irrigation systems. In 2005, the Water Code defined the principles, institutional arrangements, and processes for integrated water resources management, using river basins as primary planning unit. The Code also provided for the expansion of the participation of water users, the public, and the sectors involved in the planning, formulation, implementation, and monitoring of government decisions.

Faced with increasing water scarcity as result of the changing climate, many local communities have shifted to agroforestry. This allows farmers to grow various crops in close proximity – which reduces water consumption for irrigation. Introduction of a multi-storey agroforestry system near rivers reduces the risk of mudflows, floods, and landslides – preserving the state of rivers and river basins. Plants and/or trees grown for agroforestry also contribute to carbon sequestration, reducing the carbon emissions that cause climate change.

Source:

Maratova, E., Kozhoev, E., Bostonbaev, T. for the National Union of the Water Users Associations of the Kyrgyz Republic (NUWUA). (2021). *Kyrgyzstan: Of pastures, water, and climate change*. NUWUA, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

the MILALITTRA community in Bukidnon Province, Philippines could provide a compelling case for recognizing the role of indigenous communities and traditional land governance systems as an approach towards restoring upland forests and watersheds, while protecting downstream communities from the effects of climate change (see Box 9).

As shown in the MILALITTRA case, secure tenure rights provides the incentive for people and communities to invest long-term in the protection and sustainable use of their environment. Moreover, the incident shows how the presence of *legally recognized land rights* (thru a Certificate of Ancestral Domain Title, or CADT) and a *legal persona* (in the form of MILALITTRA as a registered organization), enabled members of the *Talaandig* tribe in three village communities to negotiate confidently with local municipal governments, businesses, the university and other outside groups of stakeholders.

Box 9. Protecting the Watershed thru Traditional Governance in Mt. Kalatungan, Philippines

Mount Kalatungan in Bukidnon province is the fifth highest peak in the Philippines; it is a key biodiversity area and a major water source to downstream households and industries. It is home to the *Talaandig* indigenous tribe whose ancestral domain embraces a territory of over 13,000 hectares of forest. However, years of illegal logging, small-scale mining, timber poaching, and quarrying degraded the forest ecosystem, resulting in uncontrolled soil erosion, landslides, and flooding.

In December 2011, Typhoon Washi (*Sendong*) hit Northern Mindanao, Philippines with unusually heavy rains. Flash floods washed out houses, bridges, debris, instantly killing more than 1,200 people mostly living along riverbanks and coastal areas. It was one of the world's deadliest storms for that year. This led to a massive public outcry for reforestation and better protection of the watershed.

Forest cover in indigenous lands. In 2003, the *Talaandig* community registered as a legal organization under the name of MILALITTRA (taken from four villages of Miarayon, Lapok, Lirongan, and Tinaytayan). In the same year, the community was awarded a Certificate of Ancestral Domain Title (CADT) covering 11,367 hectares, under the Indigenous Peoples' Right Act of 1997.

The recognition of indigenous land rights through the CADT empowered MILALITTRA to govern its land and its people. In a span of 11 years, the forest cover of the ancestral domain increased from 45.8 percent in 2005 to 49.8 percent in 2016. A major motivation of the Talaandig community has been the protection, preservation and rehabilitation of its *Igmale'ng'en* (sacred forest).

Reforestation through a Payment for Ecosystem Services (PES) scheme. The issuance of CADT and the recognition of its important role in ensuring environmental integrity in the Mt. Kalatungan landscape opened opportunities for MILALITTRA to collaborate with other stakeholders.

Thus, following the heavy floods of 2011, MILALITTRA engaged with different stakeholders in the design and establishment of the PES in Mt Kalatungan. PES refers to a variety of financing arrangements through which the providers of various types of environmental services (e.g., watershed protection) are paid or rewarded for their services by those who benefit from these services.

Under the PES in Mt. Kalatungan, MILALITTRA as the "seller" would provide "water regulation services through reforestation of denuded lands." MILALITTRA initially offered 1,648 hectares of its ancestral domain for reforestation. The "buyers" are the beneficiaries of this scheme (i.e., businesses, cooperatives, academic institutions, religious organizations, households, and individuals). The PES scheme was launched in May 2014, with multiple partners and agencies constituting the monitoring body. Though the initial years yielded encouraging results, challenges remain in the coming years, i.e., getting the continued trust and confidence of buyers, ensuring delivery of results, and providing efficient management.

Some lessons:

- *Recognizing indigenous peoples' land rights can hasten forest conservation*. MILALITTRA has been able to increase the forest cover of its ancestral domain. With its land rights recognized, MILALITTRA is able to prevent intrusion by illegal occupants and investors, regulate the cutting of trees, and collaborate with other stakeholders in managing a common landscape.
- *Landscape governance sustains ecological integrity*. MILALITTRA's ancestral domain lies in a watershed where its land use and management can have beneficial or destructive impact on the communities downstream. Thus, *landscape governance* is crucial – where different stakeholders participate in making decisions, and where a wider perspective is needed that considers not only social and economic concerns, but the environment as well.

Source:

Ravanera, R. for Xavier Science Foundation, Inc. (XSF). (2021). *Governing Ancestral Domain Amidst the Changing Climate in Bukidnon, Philippines: The Talaandigs share their story.* XSF, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

Indeed, many mechanisms for ecological services, emission rewards and carbon-financing schemes are complex, and efforts will be needed to ensure that poor people are not shut out of such benefits through social exclusion or limitations on land-use rights (IFAD, 2011). Entitlement to payments under such schemes as Payment for Environmental Services (PES) and Reducing Emissions from Deforestation and Forest Degradation (REDD) is directly linked to land rights. Hence, those without

legal forest tenure are likely to be left out or even displaced with the increased competition for forest lands. Treating forests as "carbon sinks" (as in some REDD schemes) could also lead institutions to overlook the other functions that forests provide for local people (Quizon, 2013).

For many sectors of the poor, *collective action* is a necessary condition for pursuing and protecting their land rights. *Collective action* can be a legitimate/legitimizing source of power for ensuring property rights for the poor (e.g., social movements, community actions and group enforcement). **Thus, despite their lack of legally recognized land rights, some communities rely on their community cohesion and collective action to improve their social resilience in coping with natural disturbances and in averting disasters.** A case in point is that of the Bulupayung SeTAM Peasants (Union) in the southern coast of Cilacap regency, Central Java, Indonesia. For many years, the local farming community of Bulupayung Village has been mired in agrarian conflict with a State-owned company that manages forests in Java. This has not deterred the community from taking collective action in climate change adaptation; and, in fact, the case itself shows how **adaptation efforts can help to strengthen a community's land claim** (see Box 10).

Towards a rights-based approach to climate change

"While climate change affects people everywhere, those who have contributed the least to greenhouse gas emissions (i.e. the poor, children, and future generations) are those most affected. Equity in climate action requires that efforts to mitigate and adapt to the impacts of climate change should benefit people in developing countries, indigenous peoples, people in vulnerable situations, and future generations" (UNHCR, 2021).

In an earlier Resolution 7/23, the Human Rights Council had stated that climate change "poses an immediate and far-reaching threat to people and communities around the world and **[climate change] has implications for the full enjoyment of human rights.**"

The human rights implicated by climate change impacts on people and land, is illustrated by Limon (2009) through Figure 2 (see page 36).

There is need for a rights-based approach to climate change. Limon (2009) says that linking climate change with human rights would:

- humanize climate change discussions,
- amplify the voices of the poor and marginalized,
- level the playing field, and,
- construct better policy responses (at both the national and international level).

Ensor et al. (2015) argues that human rights principles enable resilience practices to have a greater pro-poor emphasis by changing the balance of power in favor of the marginalized (see Figure 2). This includes addressing the needs of those who are in the frontlines of the impacts of climate

Box 10. Adaptation in the Midst of Agrarian Conflict: Case of the Bulupayung SeTAM Peasants Union in Cilacap regency, Central Java, Indonesia

The villages in the southern coast of Cilacap regency in the Southwestern part of Central Java have been experiencing tidal floods since early 2000s due to rising sea levels in the Indian Ocean. Apart from the climate factors, the deforestation of mangroves triggered the inundation of lands. The reduction in mangrove forest cover reached its peak in 1998, as investors opened milkfish ponds in the area. A 20-day flooding in February and March 2021 submerged 3,750 houses in 16 villages and caused massive economic losses.

In the case of the Bulupayung village, one of the areas in Cilacap regency hardest hit by the tidal floods, farmers have been experiencing difficulty in growing rice, and only harvest rice once in a year. Even after changing their agricultural calendar to adjust to the inundation season, the Bulupayung farmers still face the risk of crop failure since their new harvesting period now falls under the dry season. The village's 515 hectares of rice fields remain threatened. Even the 14.6-kilometer road independently built by the Bulupayung SeTAM Peasants (Independent Peasants' Union) was destroyed by the 2021 flood.

The Bulupayung SeTAM farmers initiated activities to minimize the impacts of tidal flooding. From 2010 to 2021, the farmers began replanting mangroves along the southern coast of Cilacap. This planting is done independently, both in terms of cost and the planting process. In 2020, the peasants agreed on the rules within the organization not to cut down mangroves anymore. While this regulation is internally binding, it has influenced the neighboring communities, as well as the local government, to protect the mangrove forest. People outside the organization are also reluctant to violate the internal rules of SeTAM since the positive impacts are also being felt by the surrounding community.

Since 1960, Bulupayung village has been in an agrarian conflict with the Perum Perhutani – a State-owned company that manages forests on the island of Java. The claims by the Perhutani alone has complicated the community's economic and social development for decades. With the possibility of the government designating Bulupayung as a watershed restoration site or an expansion of a conservation forest – given the vulnerability of the village to tidal floods – the farmers face even greater threats to their land claims.

In 2016, the Bulupayung SeTAM proposed that government designate their land as a Priority Location for Agrarian Reform (LPRA), and as such, as a priority area for resolving agrarian conflict and land redistribution.

While their lands have not yet been officially distributed and issued to the farmers, the SeTAM has already began to carry out agrarian reform based on a people's initiative. The community makes its own assessments on how much land can be planted and owned, the use of the river to irrigate agricultural land, the market for the community's agricultural produce, and protection of the area's mangrove forests.

The prevailing climatological and political challenges have not hindered the people of Bulupayung from pursuing their own socio-economic development. The peasants have also been able to meet with the Indonesian president to seek support towards their land rights claim. Thereafter, the Bulupayung village has been designated as a priority location for the government's 2021 agrarian conflict resolution efforts.

Source:

Maulana, R. S., Sitmorang, J. R. M., and Rahayu, L. D. for Consortium for Agrarian Reform (KPA). (2021). *Peasants adapt, innovate amid disasters, conflict: Case Study on Cilacap Independent Peasant Union, Bulupayung village, Cilacap regency, Indonesia.* KPA, Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) and Land Watch Asia (LWA). [Manuscript copy].

change, including peasants, indigenous peoples, pastoralists, small farmers, fisherfolk, and poor urban dwellers, who, paradoxically, may have also contributed to it the least. People in vulnerable situations who face greater risks and threats from climate should have the right to meaningful and informed participation in decisions likely to affect their rights and survival.

At the global level, much inequality also exists. Many poor countries and Small Island States, which produce the least greenhouse gases (GHGs), are more adversely affected by climate change than well-developed countries that produce higher amounts of GHGs. Adaptation and mitigation measures society to address climate change must also be planned to protect human rights,

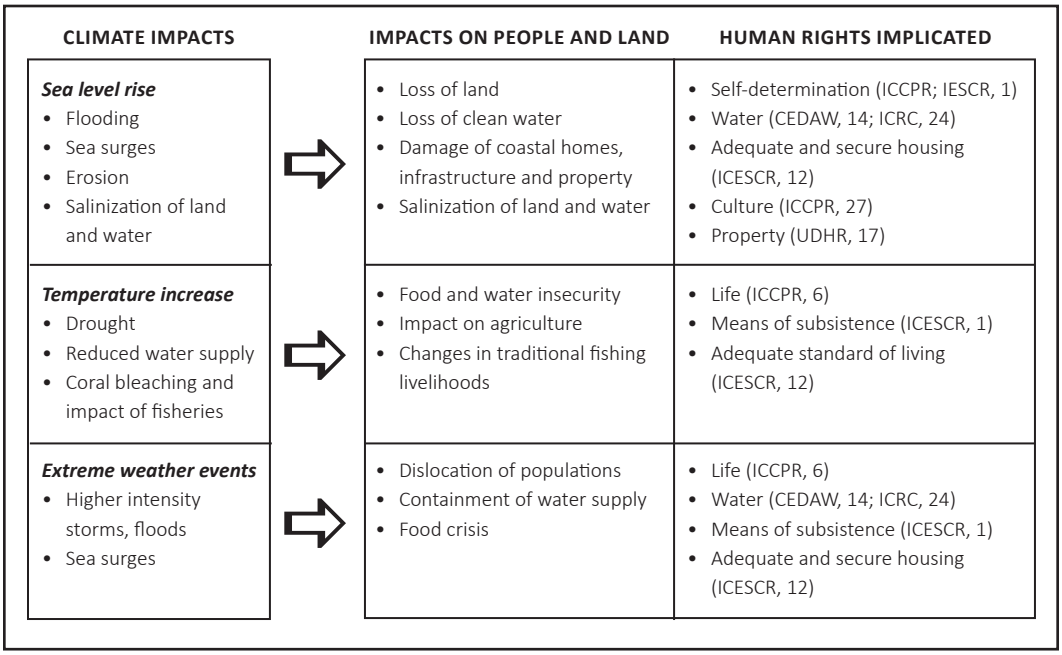

Figure 2. Climate Impacts on People and Land, and Human Rights Implicated
Adapted from Limon, 2009

promote social justice, and not exacerbate existing problems for vulnerable populations, or create new ones.

In adaptation, there is wide consensus that States should ensure adequate tenurial security for people and communities, as this provides the starting point and enabling environment for people to cope with climate change and to take adaptive responses. Since sectors without secure land tenure rights and who are politically weak face the greatest threats from climate change, **tenure systems should allow land rights to be reassigned to enable societies to cope with land use change, displacement and migration, and the expected rise in competition and conflict over land as a result of climate change** (Quizon, 2013).

A rights-based strategy could seek to have tenurial and property rights recognized and enforced by the different legal and land administrative provisions. This includes legal recognition of tenure security and property rights on land currently managed under various types of customary and informal tenure. This would provide different starting points for improving adaptive capacity and resilience especially for the poor and vulnerable.

It may be noted that as much as 70 percent of the world's land lie outside formal registration systems and cadasters and are managed under customary and informal tenure regimes (GLTN, 2015).

Currently, as much as 45 percent of the land in developing countries of Asia are controlled by States under the public domain. Many poor people continue to live and eke out meager livelihoods in these State lands with no legal recognition, and many are even dispossessed when such lands are awarded as land concession to private and State companies. The allocation and management of such lands will be crucial in responses to climate change.

A rights-based approach would compel States and other duty bearers[5] to address land tenure issues and to re-establish tenure security for affected families and communities in the event of climate-induced disasters.

Climate change also raises questions for broader land policy, including provisions for population and urban growth, management of common property resources, land use regulations, environmental protection, resettlement in the face of natural calamities and hazards, and potential conflicts to which climate change may be contributing.

Land tenure is also not addressed in several international instruments. International instruments on climate change and natural disasters like the UNFCCC, Paris Agreement and the Sendai Framework also do not provide explicit references to tenurial rights (La Viña and Tan, 2017).

Instead, **the Voluntary Guidelines on the Responsible Governance of Tenure of Lands, Fisheries and Forests (VGGT) is one of the few international documents that expressly mentions the linkages of land tenure rights to climate change** (Sec 23), natural disasters (Sec 24) and conflict (Sec 25).

Further, the **UN Social Development Goals (SDGs)** specifically recognize the role of land (as a cross-cutting theme) in sustaining human development through SDG 1, 2, 5, 11, and 15, while Goals 1, 2, and 5 specifically address community land rights. SDG 13 meanwhile specifically focuses on the need for climate action. The specific targets and indicators of SDG 13 makes no specific mention of tenure rights, though the SDGs as a whole address both the need for tenure rights and climate change response.

Currently, the laws on climate change and natural disasters still do not address land tenure issues. On the other end, neither do existing land laws make sufficient reference to climate change and disasters. A 2017 review of Philippine laws on climate change and natural disasters found that, while these laws contain broad policy declarations that recognize the importance of tenure rights, their operational provisions lack clear protections for tenure rights and the enjoyment of these rights in the event of disruptions due to climate change and disasters. While the laws recognize "improper land management" as one of the underlying causes of disasters, they do not regulate

[5] Duty bearers are entities *identified by the rights holders* as competitors and enablers with more power and whose claim over land under contestation is not inherent to their survival and identity. This includes private companies/corporations, powerful individuals, government, State-owned enterprises, the military, as well as other rights holders (Source: ANGOC. (2021). 2020 Land and Resource Conflicts Monitoring Report in the Philippines. [Manuscript copy].)

tenure over land. Also, other laws relating to land governance make no reference to climate change and disasters, as most of these laws were enacted long before climate change and natural disasters became part of policy discussions[6] (La Viña and Tan, 2017).

Similarly, in Bangladesh, the relationship between land tenure issues and disasters has not been reflected and integrated in several key policy frameworks, such as the *Poverty Reduction Strategy Paper*, the *National Plan on Disaster Management 2008 to 2015*, and the *Standing Order on Disasters* (Shaf, 2010).

Ways for moving forward

The impacts of climate change can bear heavily on people's land access and land tenure in ways that affect their livelihoods, well-being and sense of security. Yet, there is still limited understanding and appreciation of the links between the impacts of climate change, land tenure, and need for social and policy responses.

The lack of land rights among the poor sectors makes it doubly difficult for them to cope, recover and rebuild when disasters strike. Displaced families whose needs are not addressed are likely to fall deeper into cycles of poverty and vulnerability, adding to residual caseloads of people without access to land.

As shown by experiences, inadequate responses to disaster events often stem from a lack of clear understanding of tenure issues in the context of natural disasters and the impacts of climate change. There is lack of clear policy, and limited capacity of local governments and frontline agencies to deal with tenure issues. Oftentimes, local governments are disaster victims themselves.

Thus, it is important to address land tenure issues in early efforts at building resilience and disaster preparedness. Also, climate change adaptation needs to be mainstreamed into national planning and policy frameworks, including land policy. These strategies should aim to deliver adequate tenure security, as this is necessary to provide people with the rights, resources and incentives for good land and resource management, and reduced vulnerability.

Climate change also raises questions for land policy for addressing wider issues of land access and redistribution, land use, management of common property resources, environmental protection, resettlement in the face of natural calamities and hazards, and potential conflicts to which climate change may be contributing.

Hence, this paper outlines four major recommendations: a) building a better understanding and appreciation of land tenure issues in climate change discussions; b) inclusive governance and the

[6] A sole exception is the Indigenous Peoples' Rights Act (IPRA) of 1997 that recognizes the rights of ownership and possession of indigenous cultural communities (ICCs) and indigenous peoples (IPs) over their ancestral domains. It also protects the tenure rights of ICCs/IPs in case displacement occurs due to natural catastrophes.

need to re-frame the policy discourse on climate change; c) addressing land tenure rights and security in the context of natural disasters; and, d) ensuring an engaged stakeholder participation.

In relation to building a better understanding and appreciation of land tenure issues in climate change discussions –

Stakeholders should:

- *Humanize climate change discussions.* While climate change discussions initially focused on its physical impacts, we should now focus on climate change as an issue of humanity – in terms of lifestyles, consumption behaviors, and inequalities – and in the kinds of choices and sacrifices we have to make. It is far harder for world governments to remain ambivalent in the face of human suffering, especially when that suffering is on a global scale and is man-made, than is the case with physical phenomena such as melting icecaps or bleaching coral. Humanizing climate change creates an ethical imperative to act that can with time translate into legal obligations; a human rights approach (will) situate ethical imperatives within a legal framework (Limon, 2009).
- *Amplify the voices of the poor and marginalized.* Using a human rights lens and framework will help to bring focus on those who are disproportionably affected by climate change - the poor, marginalized, and vulnerable people (including women, children, indigenous groups, discriminated castes, the landless, the elderly) who might otherwise not be heard and who, if empowered, could make an important contribution to improving climate change policy (Limon, 2009).

Civil Society Organizations (CSOs) should:

- Raise concerns and discuss with stakeholders on the need to address land tenure issues in climate change responses, and in natural disaster policies and programs.
- Provide platforms for CSOs and communities to improve the documentation of field cases in support of public awareness and advocacy on the need to address land tenure rights in climate responses. Possible themes include:
  - How secure tenure rights encourages sustainable land use by communities in ways that restore their environment
  - How those with secure tenure are less likely to be at risk of land disputes, which may affect their adaptive capacity
  - How land rights, especially for women, contributes to the improved capacities of families and communities to implement resilience actions
  - How securing and recognizing customary tenure for indigenous communities (with legal or policy frameworks) helps to reduce deforestation, improve land management, and improve the capacity of indigenous communities to adapt and respond to climate change
  - How tenure security/insecurity affects post-disaster financial support

In relation to inclusive governance and the need to re-frame the policy discourse on climate change –

Ensuring a rights-based framework towards climate justice:

- Governments should undertake a review of major national laws on climate change and natural disasters on whether they explicitly address the links between climate change and disasters and tenure rights. Governments should adapt a framework that ensures the protection of tenurial rights in the face of natural and man-made hazards.
- The *Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT)* provides a useful reference to improve tenure policy and legal frameworks in relation to climate change strategies. The VGGT is one of the few international documents that expressly mentions the linkages of tenure to climate change and natural disasters.
- Further, the Sustainable Development Goals (SGDs) recognize the role of land in sustaining human development through SDG 1, 2, 5, 11, and 15. SDG 1, 2, and 5 specifically address community land rights – i.e., indicators 1.4.2, 5.a.1 (a), and 5.a.1 (b); and target 2.3.
- For longer-term climate change adaptation and disaster preparedness, comprehensive land use planning at local level should be guided by scientific hazard mapping studies, a national policy on land use, and a policy on ensuring land tenure security for those likely to be affected by land use plans.
- While many governments include agriculture as a priority for adaptation within their Nationally Determined Contributions (NDCs), very few address issues of tenure security and land governance. Governments, thus, should include clear commitments that recognize and strengthen tenure of vulnerable communities, in their NDCs and National Adaptation Plans.
- Ensure that a gender perspective, including efforts to ensure gender equality, is included in all planning for climate change mitigation and adaptation. The rights of children, older persons, minorities, migrants and others in vulnerable situations must be effectively protected.
- Building transparent and accessible land administration systems that can contribute to both risk reduction and recovery efforts requires expanding and verifying available information based on land use, land tenure and ownership. It is fundamental that the center point of land administration and management systems should always be the people, focusing on peoples' relationship to the land, their context and their community.
- Improved land governance should be a part of climate change adaptation. Land tenure should be a central consideration in vulnerability/risk assessments and adaptation planning processes.
- Finally, the tasks of building disaster preparedness and resilience should also focus on ensuring tenure security for all. This includes the need to reassign tenure rights, towards broader development goals of ensuring greater land equity, redistribution, and tenure security.

Promoting climate-responsive policies:

- As women are disproportionately affected by climate change impacts, their role and inclusion in land management and tenure should be strengthened. Policies should ensure equal land rights for women and remove barriers to women's participation in sustainable land management. Some steps may include improved spending on health, education, training and capacity building for women, financial support and program dissemination through existing women's community-based organizations.
- Indigenous people's rights to land should be legally recognized and protected. Access and use of land enhances the equitable sharing of land resources, fosters food security and increases the existing knowledge about land use, which can increase opportunities for adaptation and mitigation.
- Customary approaches to the management of land and resources should be supported, including the seasonal migration of pastoralists. Provide secure, legally recognized land tenure rights for people who depend on community lands for their livelihoods and food production.
- Recognize and, where relevant, record land tenure rights for those living in informal settlements to improve their access to infrastructure, services and the formal economy.
- Use mitigation programs to improve tenure security. Forests, watersheds, drylands, and other agricultural lands could provide important environmental services for mitigation, but are often held under insecure tenure. In such cases, providing tenure security could be used as an incentive or a reward for participation in environmental protection, and in sustainable use and management of the resource. There are many examples of social forestry agreements and community-based natural resource management programs where increased security of tenure for upland farmers, forest users and coastal fisherfolk are ensured, in exchange for their commitment to resource-management methods that would incorporate agroforestry and sustainable resource management practices.

In relation to addressing land tenure rights and security in the context of natural disasters –

- Include land tenure issues when conducting impact and vulnerability assessments that investigate both biophysical and socioeconomic factors. This will help ensure that land tenure issues are addressed in the planning of adaptation programs, and in the prioritization of investments.
- Governments should address tenure in disaster prevention and preparedness programs as well as ensure that tenure concerns are addressed in their relief and rehabilitation programs, in particular:
  - Review national action plans of climate change and natural disaster. Ensure that land tenure issues of the rural poor are incorporated in the plans.
  - Implement risk mitigation measures such as protecting land records against disasters, and creating multiple back-up files and record storage locations. Build resilience into the administrative system to facilitate recovery (Mitchell, 2011; FAO, 2012).

- Incorporate assessments of tenure status and issues in disaster risk mapping and response preparedness efforts. In areas threatened by slow onset disasters such as sea-level rise and droughts, involve affected community members in defining threshold levels and any subsequent zoning decisions, alternative land use plans, and/or the identification of permanent resettlement sites (Caron, et al., 2014).

- Participatory disaster mapping is a proven tool for supporting and planning community-based disaster preparedness programs. Community-drawn maps can highlight important information such as land use, landownership patterns, physical structures (e.g. schools, clinics, water wells, markets, important roads), disaster-prone areas (e.g. steep slopes, flood prone areas, ground water conditions), and environmental issues. Preparation of these maps can serve as a first step in the planning process for disaster preparedness programs.
- Persons who are temporarily displaced should be assisted in voluntarily, safely and with dignity returning to their place of origin. Governments should provide means to resolve disputes over local tenure rights. Where people are unable to return to their place of origin, they should be permanently resettled elsewhere. Such resettlement should be negotiated with host communities to ensure that the people who are displaced are provided with secure access to alternative land, fisheries, forests and livelihoods in ways that do not jeopardize the rights and livelihoods of others (VGGT, Sec 24.5).
- Post-disaster reconstruction should be informed by the way land is accessed, used and controlled. This may include:
  - Developing an inventory of potential relocation areas with assessments of their tenure and hazard risks.
  - Conducting vulnerability assessments that combine climate-risk modelling with an assessment of the available information about land occupation, use and tenure conditions, and the capacity of land institutions.
  - Determining what processes are acceptable alternatives to documentary proof of land ownership or occupancy, so that shelter and housing assistance is ensured for those living in informal settlements, under customary tenure, or without documentation of property rights (Caron, et al., 2014)
  - Conducting community-based enumerations of local residents based on local forms of tenure that existed, immediately after a disaster. Such documentation may help prevent the escalation of land disputes and will facilitate rehabilitation, reconstruction and resettlement where necessary.

In relation to ensuring an engaged stakeholder participation –

- Ensure the full involvement of local stakeholders (particularly those most vulnerable to climate change including indigenous peoples and local communities, women, and the poor and marginalized) in the selection, evaluation, implementation and monitoring of policy instruments for land-based climate change adaptation and mitigation. *Those without legally documented property rights should not be left out of such discussions.*

- Full participatory approaches are needed to ensure that local stakeholders not only take part in the assessment of local climate vulnerabilities but are also involved in the co-design of resilience actions. There should be a goal of "providing secure land tenure rights for all."
- Provide mechanisms to actively address land use that leads to land degradation and over-exploitation of land and water resources. Recognition in policy of the need to provide security of tenure for all should help to reduce negative environmental impacts**.**
- Adaptation and mitigation plans should be publicly available, transparently financed, and developed in consultation with affected groups. Particular care should be taken to comply with relevant human rights obligations related to participation of persons, groups, and peoples in vulnerable situations in decision-making processes and to ensure that adaptation and mitigation efforts do not have adverse effects on those that they should be protecting. ■

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DISCLAIMER

The views contained in this document do not necessarily reflect those of ILC.

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ACRONYMS

ADB	Asian Development Bank
ANGOC	Asian NGO Coalition for Agrarian Reform and Rural Development
DRR	disaster risk reduction
FAO	Food and Agriculture Organization of the United Nations
GHGs	greenhouse gases
GLTN	Global Land Tool Network
ILC	International Land Coalition
IPCC	Intergovernmental Panel on Climate Change
LWA	Land Watch Asia
PES	Payment for Environmental Services
REDD	Reducing Emissions from Deforestation and Forest Degradation
UN	United Nations
UNDRR	United Nations Office for Disaster Risk and Reduction
UNFCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

Displacement, migration, land loss, and climate change: The case of Shyamnagar and Koyra sub-districts of Bangladesh

Prepared by
A K M Bulbul Ahmed, Program Officer (Law), ALRD

Bangladesh is one of the world's most disaster-prone countries as it sits on the flood plains of major rivers, making its population of some 165 million people vulnerable to natural disasters such as sea level rise and cyclones that are increasing in frequency and strength due to climate change.

Aila, one of the most catastrophic cyclones that formed in the Indian Ocean, hit Bangladesh in 2009.

Climate change, as felt and seen in the Indian Ocean, is also disrupting traditional rain patterns — drought in some areas, unexpected deluge in others — and boosting silt-heavy runoff from glaciers in the Himalaya Mountains, leading to an increase in flooding and riverbank erosion (Aktar, 2013).

Sea-level rise, meanwhile, is pushing saltwater into coastal agricultural areas and is threatening to permanently submerge large swaths of land.

Because of these disasters, as many as 4.4 million Bangladeshis were forced to evacuate to safety in 2020, according to the Internal Displacement Monitoring Centre (IDMC, 2021).

And this number of Bangladeshis likely to be displaced by various disasters arising from climate change may even reach 13.3 million by 2050, making climate change the main driver of internal migration, according to a March 2018 World Bank report (McDonnell, 2019).

The Stern Review Report on Economics of Climate Change likewise made the grim prediction that one in every seven Bangladeshis - about 22.8 million - will be displaced by 2050 due to the impacts of climate change.

Study area

This case study focuses on the Satkhira district (Shyamnagar sub-district) and Khulna (Koyra), which have similar geographic characteristics and vulnerabilities to climate change.

Koyra is the largest sub-district of Khulna district and most of the residents depend on agriculture. It faces various hazards such as waterlogging, saline intrusion, storm surge, sea-level rise, and floods (WARPO, 2001).

Shymnagar, meanwhile, is a sub-district of the Satkhira District. In addition, like Koyra, residents here depend heavily on agriculture.

Disaster events experienced in the community

By definition, Aila is considered a weak Category 1 cyclone, but its economic impact has been severe, bringing in long-term sufferings to the people in the southwestern portion of Bangladesh.

Particularly hit are those in the Satkhira and Khulna districts, killing 325 people and causing massive damage to infrastructure.

The tidal surge reaching 10 to 13 meters washed away households, lives, livestocks, crops, and other resources. Only a few managed to escape to cyclone shelters. Most rushed to the roads and roofs of the schools, colleges, *madrashas*, mosques, and local government buildings (Baten and Kumar, 2010).

Effects of disaster in the community

Hardest hit by cyclone Aila are the Koyra, Dacope (Khulna) and Shyamnagar (Satkhira) sub-districts at the southwest coastal belt of Bangladesh.

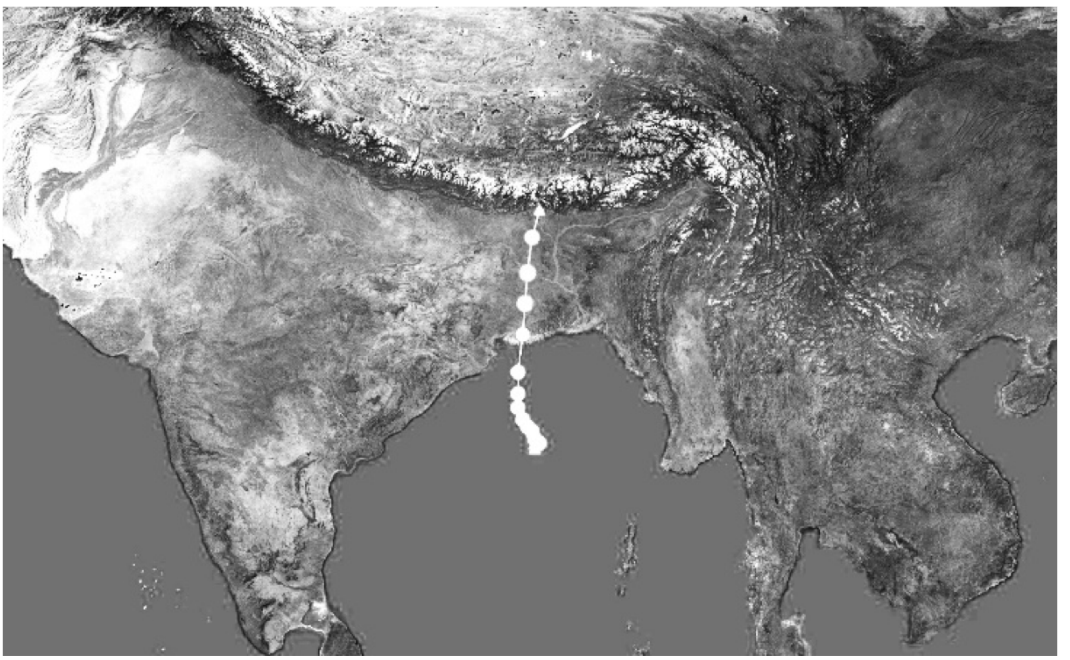

Figure 1: Track of Cyclone Aila
(Source: http://www.storm-surge.info/cyclone-aila-2009)

In Koyra, Aila damaged, among others, 81 kilometers of embankments, 163.5 kilometers of asphalt roads, 49 bridge culverts, 42,440 houses, crops on 11,500 hectares of land, and 10,364 aquaculture farms (Sadik, et al., 2018).

Then in the Shyamnagar sub-district that was first hit by Aila, more than 34,000 people were rendered homeless. As many as 28,000 of them are still staying in makeshift tents or near embankments.

In addition, 359.55 square kilometers of land were completely inundated by surge water and this is particularly damaging to the area where the vast majority of the population are engaged in agriculture and fisheries, such as shrimp culture (Baten and Kumar, 2010).

Indeed, the coastal people here depend almost exclusively on natural resources for their livelihood. With their major occupations being fishing and farming, cyclone Aila dealt them a particularly heavy blow.

Aila also damaged most of the drinking water sources of Shyamnagar, mainly ponds and wells.

According to a study by Chakroborty and Kabir (2016), almost seven of ten households in the sub-district say they are still not able to source enough water for drinking and household uses during disasters because almost all of the drinking water resources were destroyed by the cyclone.

High tide surges have also contaminated all fresh water sources with salty water. Because of the shortage, most of the people had no choice but to use polluted water for drinking and cooking (Chakraborty, et al., 2016).

The polders or the embankments that protect the valuable shrimp farms from high tide surges also collapsed due to the pressure from the high tide, leading to waterlogging and salt water intrusion into the shrimp farms.

The salinity of the soil has likewise increased two years after Aila, thus many farmers have been unable to restore their farms (Abdullah, et al., as cited in Subhani and Ahmad, 2019).

The productivity of agricultural land has been reduced, forcing many households to desperately look for other sources of income. Such poor conditions, combined with the financial losses from the crop damage, led to the increase in the number of landless and marginal farmers (Subhani and Ahmad, 2019).

Small farmers' ability to adapt to these climate change-induced disasters is hampered because it is not as easy for them to look for alternative income sources.

Their poor socioeconomic standing, social networks, and limited access to information, education, and technology all weigh down on their ability to cope with these disasters.

For many of them, the only choices left are to move or migrate to other places or just stay where they are, trapped and unable to move despite the more challenging conditions (Subhani and Ahmad, 2019).

Responses to the disaster event

Cyclone Aila hit the southwestern coastal region just when the government was rehabilitating areas damaged by a powerful cyclone that struck in 2007, and some funds and projects geared toward the recovery from the earlier cyclone Sidr were used to initiate cyclone Aila recovery projects. For example, rural roads were initially reconstructed by modifying the World Bank's Emergency 2007 Cyclone (Sidr) Recovery and Restoration Project.

The government later on adopted specific plans for Aila recovery. These plans followed two approaches: a) segmenting and prioritizing the reconstruction activities under the Annual Development Plan (ADP) of the government; and, b) formulating special initiatives (with foreign aid) for large-scale projects.

The ADP and Rehabilitation of Aila-Affected Rural Infrastructure Project (RAARIP) were formulated to complete the unfinished rehabilitation tasks (Sadik et al., 2017). However, not one of these projects incorporated new disaster risk reduction (DRR) measures (Sadik, et al., 2018).

Agricultural farm-based households often adopted various disaster-response strategies themselves to reduce the impact of climate change on them such as diversifying their income sources, changing cropping practices, and crop diversification (McLeman, 2014).

The coastal communities affected by Aila were encouraged to adapt to climate change or reduce their vulnerability to natural disasters by, among others, using saline water-tolerant crops and diversifying into vegetables such as eggplant and spinach that do not require major irrigation systems (Rabbani, et al, as cited in Subhani and Ahmad, 2019).

However, while these strategies are sound, there are more for long-term planning and do not address immediate needs. In fact, it was found that less than 20 percent of the households tried to change their cropping patterns after cyclone Aila.

The immediate impact was the use of savings, reduced expenses on health and education. Some even stopped sending their children to school so they can work and contribute to the household income.

This will have dire consequences on the quality of labor and education in the years ahead. Previous studies had indeed found that in both rural and urban households, children's school attainment decreased after a disaster (Subhani and Ahmad, 2019).

Generally, the community members do not know enough about existing interventions on climate change, although they do know about disaster management and response initiatives.

Climate change, migration/displacement, and tenure security

The devastating effects of climate change such as those witnessed in the aftermath of cyclone Aila extend to migration/displacement and tenure security.

A study by Subhani and Ahmad (2019) shows that functionally landless people living on 0.1 to 0.49 acre (approximately 0.04 to 0.20 hectare) of land are interested in migrating. There is greater possibility that they will migrate because they have to change occupations or find another means of livelihood. In addition, households who are no longer able to eat three times a day are forced to migrate from their original location.

The said study also showed that factors influencing the decision to migrate include ability to learn adaptation strategies and opportunities to earn from alternative income sources.

A survey conducted by ALRD (Ali and Hossain, 2017) looked into the main cause that triggered the relocation of the sample population. It was determined that across the three districts (Satkhira, Khulna, and Noakhali), there were common reasons for migration. These include lack of employment opportunities and the impact of natural disasters. In Satkhira (Shyamnagar), most of the displaced households moved due to Aila.

Those who did not have their own land could not stay because they were left without work. River erosion and cyclones such as Aila have left people homeless in Satkhira (40 percent) and Khulna (33 percent).

The study by Ali and Hossain (2017) thus concluded that the primary reason residents leave their home after being devastated by natural disasters is due to being landless or land-poor. This was mentioned by 84 percent of the studied households.

About 75 percent of the respondents also mentioned the lack of work opportunities in their original homes or areas as their reason for considering staying in their new settlements. About 40 percent of the respondents also said that they were considering making a permanent home in their new settlements because there was no one left in their village to return.

Such loss of human ties is a critical element of psychosocial detachment with their place of origin.

About the same number also mentioned that they no longer have any space in their original communities. This feeling of isolation is making it extra difficult for them to imagine a return to their origin.

In contrast, the respondents who said they were not considering migrating pointed to their having land at their origin as a reason. They also cited poor housing at the settlements; lack of social dignity; and, that they preferred work opportunities at their original home. This is why they are not considering migration as a permanent solution to their difficulties that arose due to natural disasters.

The study also revealed that those who had to migrate or were displaced because of natural disasters induced by climate change adopt different strategies to be able to stay permanently or gain social acceptance in their host communities. One of these is to gain land at their new place.

Around a quarter of the migrant households have already gained some form of access or ownership at their new places. About a tenth got some land in Satkhira and about a third in Khulna (Koyra).

Aside from getting the chance to claim *khas* land, the financial capacity to buy land, and the capability to access NGOs or informal sources of finance, those displaced by climate change also emphasized the need to gain the acceptance of the host community, kinship with host community, and the ability of taking *dakhal* (i.e. possession) of land as critical factors in owning land at their new areas.

Lessons learned and way forward

Zones vulnerable to natural disasters brought about by climate change are taking on permanent characteristics such as salinity, river erosion, and water scarcity that are making it extremely difficult for people to remain in these areas. These then provide the conditions that make people migrate or move.

Indeed, the loss or damage to natural resources, such as land that becomes unproductive because of salt water intrusion, lingers on after a natural disaster like a cyclone strikes. This means there is a need to develop a different form of disaster preparedness for climate change affected zones.

This will involve informing the population of the risks they have to face and the likelihood that they may have to look for another home because of their constant vulnerability to climate change. They must also recognize the strong possibility that their livelihood will be wiped away because of dire conditions such as high salinity, loss of land fertility, and lack of potable water.

There is a need based on the case findings that the people living in high-risk zones, most of whom are poor and marginalized, have to be prepared for natural disasters. In addition, there should be a

proactive strategy in place on climate change mitigation as well as evacuation that the people can immediately adopt.

It must be stressed that the government, as well as non-government organizations, must be ready with social safety net programs. Without these, displaced people as well as those who will be forced to migrate post-disaster, will have greater difficulties in making the transition.

At the same time, since displaced populations usually consider their shift "permanent," it will be more appropriate for the government or other institutions to help them integrate well in these locations instead of helping them return. This will only work after all if there is available land or work opportunities in their place of origin. Without these, their return will not be sustainable.

The issue of dignity needs to be taken into consideration. The displaced population aspires to be treated better and be recognized in their new area, the way that they were not in their place of origin.

There is a need for new legal structures and tools to establish the rights of the climate-affected and displaced to livelihood and food security along with access to resources including land for their home and livelihood.

This proposed legal framework can also work to hold relevant decision or policymakers responsible for planning, implementing, and monitoring programs geared toward climate change-affected population. These programs include those relating to adaptation and rehabilitation.

Not to be forgotten are land issues and policies. These should be key considerations in adaptation planning, to strengthen land tenure and management at the most basic levels.

It is also worth noting that the women of the displaced/migrant households have become much more involved in paid work. However, this was forced by circumstances because of the primary need to survive in their new places.

This can be an opportunity for more women to have greater participation in the labor force and this should be supported through behavioral change, through the promotion of gender awareness both at origin (climate change affected zones) and destinations (where the victims are moving in). Hopefully, this will lead to greater acceptance of women as important contributors to the economy. After all, women's status does not necessary improve even if their economic visibility improves after displacement. ■

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DISCLAIMER

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Climate Change, Land Tenure Rights, and Resource Management in Cambodia: The case of Rokha Community Forestry in Khleang Meang village, Anlong Thnoat commune, Krakor district, Pursat province

Prepared by
Te Sokkhoeun, STAR Kampuchea

The connection between land tenure and climate change is not so obvious. Tenure, or a man's relationship to land, has traditionally been viewed from the perspective of an individual or household's use, management, and disposal of the resource.

Climate change, on the other hand, is viewed from a global perspective and is attributed to the collective or human use or abuse of natural resources. It requires an understanding of the interplay of various ecosystems and the consequences of resulting imbalances.

As an example, consider a given landscape where changes in land use and management would have a significant impact on ecosystem services such as carbon sequestration, water regulation, replenishment of underground water supply, and prevention of soil erosion.

The connection becomes clearer when viewed from a broader perspective. Landscapes dominated by poor community forestry members and vast pasture lands provide a panoramic view from which these relationships can be observed.

The story of the Rokha Community Forestry (CFo) members – a group of people with an intimate relationship with the forest – in the Khleang Meang village, Anlong Thnoat commune, Krakor district, Pursat province, Cambodia illustrates the role that forestland plays in providing additional income for the 189 households comprised of 707 members (387 females, 320 males). It directly benefits 66 percent of the 287 households in Khleang Meang village.

The Rokha and Khleang Meang Village

Rokha means "forest" and Khleang Meang[1] is the name of a village, located between the Central Cardamoun Mountain National Park and Tonle Sap Biosphere Reserve.

[1] Khleang Moeung or Sena Moeung is a legendary recorded sixteenth century military innovator in Cambodia, and a watchman whose field of activity reaches out to the whole west of Tonle Sap Lake.

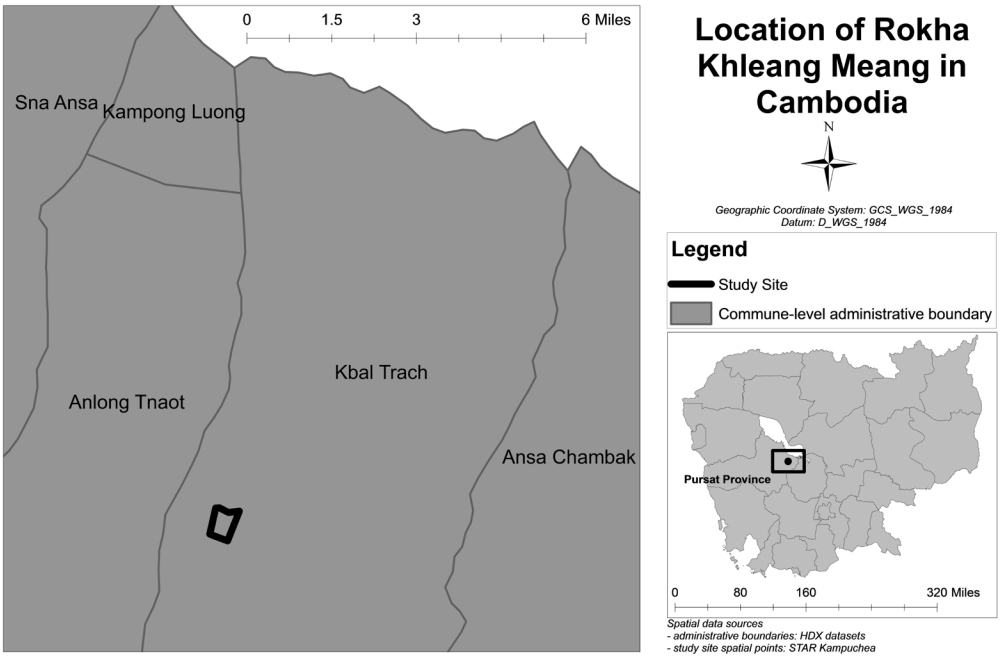

Figure 1. The Khleang Meang location in Cambodia

From this area flows vital water resources that support an eco-forestry system, fish habitats, and agricultural production, thus contributing to the needs of 80 percent of the 74,222 households in Krakor district, Pursat province.

It is these same natural resources, however, that have also made the area a place of conflict because of competing interests of groups such as rice farmers, forestry/natural resource management groups, and those involved in economic development projects.

As part of their individual mandates, various government agencies are trying to resolve these multi-layered conflicts.

The majority or 80 percent of the Rokha Community Forestry members tending to forestland are Buddhists, while the rest are Christians, Muslims, and from other faiths.

The members earn a living mainly from rice production, non-timber forest product collection, and production or from working in the capital of Phnom Penh or overseas in Thailand.

From February to March, some members hunt for insects and spiders that they sell to middlemen, bringing them earnings of between USD 5 and USD 10 a day. From April to June, they sell wild mushrooms, from which they can earn USD 5 a day. Then from August to September, the locals collect wild bamboo.

Rokha Community Forestry's members collect wild-forest fruit. *Photo by STAR Kampuchea*

Aside from selling products collected from the forest, the Rokha Community Forestry members plant rice, and they can harvest an average of three to four tons of paddy rice per hectare. A kilogram of rice could be sold for between USD 0.15 to USD 0.20 each.

Rice brings in additional income to the people in Anlong Thnoat, Kbal Trach, and other communes in Krakor district, Pursat province.

Along the way to the forestland of the community is a cottage or shelter called "Khleang Meang Hut" where the people come together to celebrate the rice harvest. They also come here to rest or relax on hot days.

The Rokha Community Forestry sits at the upper portion of National Road Number 5. Inside the forests classified as shrub forests is a tributary river called "Ou Kambot" that flows to the Tonle Sap Lake.

The major concern of the people is the Economic Land Concession (ELC) controlled by Pheamphimix at the upper mainstream that has blocked water to supply the ELC's plantation and other crops. Water from the Ou Kambot River is pumped for rice production in that area.

Land tenure and forest rights

The Rokha Community Forestry (CFo) was one of the forestry communities in Krakor district of Pursat that was signed in 2017 through an agreement with the Provincial Forestry Administration

for the management of the 47 hectares of forestland (out of the total 500 hectares) in Anlong Thnaot commune.

The Community Forestry Signing Agreement Ceremony on 20 December 2017. *Photo by STAR Kampuchea*

It was on its way to be officially registered in the Ministry of Agriculture, Forestry, and Fisheries' sub-decree of community forestry along with the supporting document of the 15-year Community Forestry Management Plan (CFoMP). However, it has so far been unable to complete the process. Instead, the Rokha CFo proceeded with the forestry inventory assessment; and in 2020, it got to the second step of the forest block division process provided under the CFoMP.

Under the forest block division system, the user rights of community forestry members would include: a) Customary User Rights prescribed in Article 40 of the Forestry Law; and, b) the right to barter, process, transport, and sell non-timber forest products (NTFPs) as described under Article 40(B), Item 5 of the Forestry Law of 2002 (Chy, 2017b).

The CFoMP must be authorized under Article 37 of the Forestry Law, and the rights granted under a Community Forest Agreement within a specific area should ensure the sustainable use of forest resources (ANGOC, 2017).

Areas under a Community Forest Agreement may harvest, process, transport, and sell forest products and NTFPs under the following conditions:

- Harvest of forest products for selling or bartering shall not be allowed within the first five years of approval of the CFoMP. If the Community Forestry Agreement has been operating with a CFoMP before the passage of the Sub-Decree, then the moratorium on harvesting forest products shall be considered from the date of approval on that CFoMP;
- Payment of any required royalties or premiums on forest products and NTFPs as prescribed in Article 55 of Forestry Law; and, terms and conditions in an approved CFoMP; and,
- Based on the Community Forest Agreement, a CFo member has the right to plant, manage, harvest forest products and NTFPs, and sell tree species as approved in a CFoMP. Community Forest Agreements shall be in effect for not more than 15 years from the date of approval by the Forestry Administration Cantonment Chief.

But according to the Rokha CFo Management Committee and its members, they are unable to fully protect the forest resources because it was in an area where there is a constant risk of the water being blocked because of the ELC, land grabbing, forestry clearance, and farming.

Moreover, there is private land in and around the community forest that is being used for rice production. This has led to disputes and conflicts over resources, particularly water.

Because of these Rokha CFo issues, the Anlong Thnoat commune and Krakor district established a working group to resolve the issues through an Alternative Dispute Resolution (ADR). Unfortunately, the group was not successful in resolving the disputes.

Land Tenure Issues, Deforestation, and Impacts on the Community

Following the passage of the forestry land and community forestry sub-decree, the Forestry Administration was designated as the governing body to protect CFo rights.

Unfortunately, actual forest and landscape management and mitigation of climate change by the Forestry Administration was limited to just helping formulate the CFoMP and gathering the resources necessary to have a functioning Rokha CFo.

Because of this, the lines separating farms/cropland, State-owned forest land, residential land, and the ELC are unclear, leading to disputes.

In 2001, people living near the ELC urged the Royal Government of Cambodia (RGC) to reduce the size of the land allocated for the ELC.

Fortunately, the petition was granted such that at the end of 2011, the RGC issued an Announcement Letter of the Council of Minister No. 289 on 14 March 2011 to grant 1,500 hectares of forestlands from the ELC to the various community forestry organizations within the three communes of the Krakor district.

From then to 2012, STAR Kampuchea worked in these areas and supported the establishment of the Rokha CFo – one of 27 CFos in Krakor district of Pursat province.

However, the presence of an ELC in the upper land areas of Rokha CFo has wreaked havoc in the natural water systems as it blocks the flow of water from the Ou Kambot River to the Tonle Sap Lake.

This artificial diversion of the water system plus the changing weather patterns due to climate change have adversely affected the Rokha CFos of Khleang Meang village.

From 2017 to 2020, the Rokha CFo of Khleang Meang village was included in the annual update of the Participatory Rapid Assessment on Climate Change Adaptation of Anlong Thnoat commune.

Data showed that over the past five years, the Anlong Thnoat commune suffered from many natural disasters such as drought, strong winds, storms, floods, outbreak of animal disease, and fire, which can all be blamed in part on the changing climate.

Participation in the Climate Change Adaptation and Mitigation Action Plan

With support from STAR Kampuchea's SNC program on Sustainable Natural Resource Management and Climate Change (SNC) in Khleang Meang village,[2] the area's hazards and vulnerabilities to climate change were assessed.

Representatives of Khleang Meang and Rokha CFo were consulted and included in the planning and development of a Climate Change Adaptation Action Plan for the commune.

In 2020, for example, 21 action plans to adapt to climate change were prioritized by villagers, commune councilors, and other relevant stakeholders.

The Adaptation Action Plan (AAP) aligned with or complemented the Commune Development Plan (CDP) of Anlong Thnoat.

To respond to drought, for example, vulnerable families were provided different forms of support such as seed varieties that can cope with the changing weather conditions, technical assistance for poultry farming and animal healthcare, and construction of ponds as well as restoration of water wells.

The water wells were constructed not just to provide water during a prolonged dry season but also to meet needs for cooking, drinking, bathing, and animal raising.

For flood response, the CDP of Anlong Thnoat called for the reconstruction of the water gate and construction of a canal. The water gate was constructed to release water and to protect the gravel road during the flash flood season. The canal, meanwhile, was constructed to ensure water supply during the rice planting season.

Also, to help mitigate the ill effects of climate change, the Rokha Community Forestry (CFo) plants new trees every year.

[2] STAR Kampuchea implemented the SNC program with the support of Forum Syd Organization from 2012 to 2014 and 2017 to 2020.

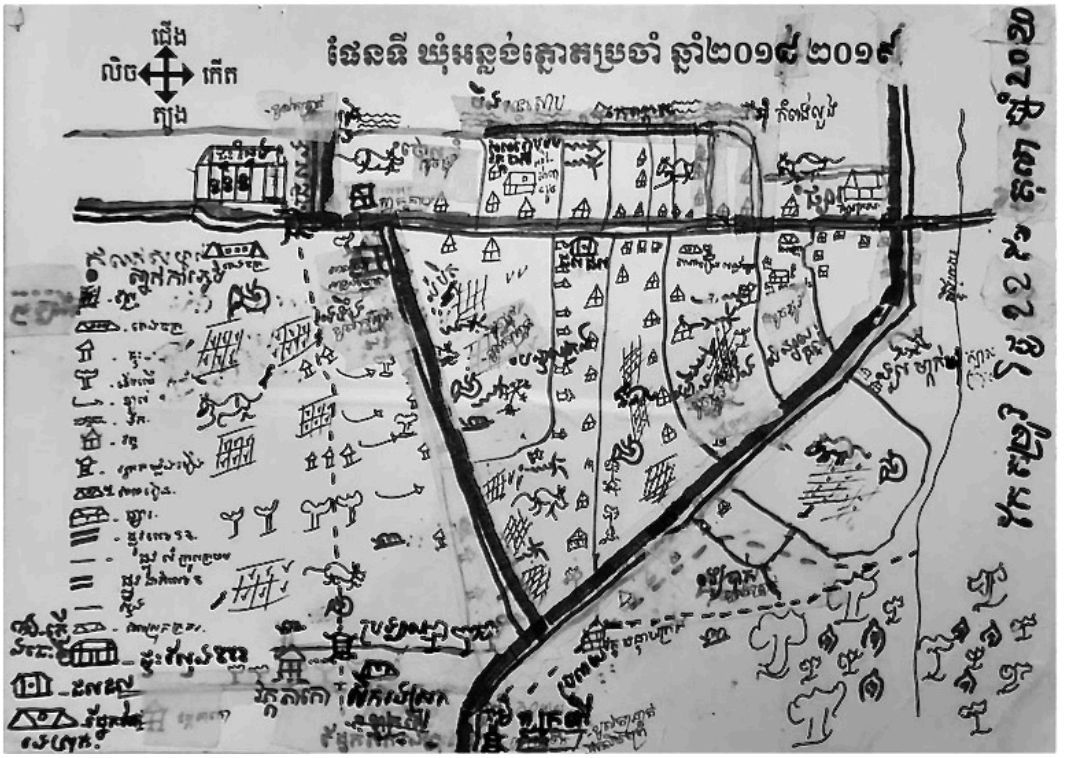

Figure 2. Hazard Map of Anlong Thnoat commune (Date: 22 October 2020)

Some 800 to 1,000 trees have been replanted inside the Rokha CFo area, the ancestor (Nak Ta) cottage areas of Khleang Meang, Wat (pagoda), and school. Nurseries and wild-forest trees were provided by the Provincial Forestry Administration of Pursat.

Increased Forest Cover in the Rokha and Khleang Meang Ancestor Cottage Areas

Since the agreement signing of the Rokha CFo with the Provincial Forestry Administration of Pursat on 20 December 2017 to manage the 47 hectares of forestland, the area had grown so fast due to the people's patrolling activities and technical support from Forestry Administration Officers, Village Chief, Commune Police Officer, and members.

Figure 3. Rokha Community Forestry Map

Around 1,500 trees had grown in the endangered forest (about 10 hectares) inside

The Khleang Meang Ancestor Cottage Areas. *Photo by STAR Kampuchea.*

the Rokha CFo because of increased vigilance against illegal logging and commitment to take care of the forest that sustains the community.

Additionally, the private sector and individual people from the ruling party provide the Community Forest Management Committee (CFoMC) patrolling team USD 25.00 per month as an incentive to continue to protect the forest.

Reforestation through the Payment for Ecosystem Service

Since the Rokha CFo was issued, the members have had more opportunities to work with other local stakeholders to ensure the environmental integrity of the Rokha CFo landscape.

Moreover, the integration of five forest block divisions in the action plan of the Provincial Forestry Administration for conservation, reforestation, and forest protection raised the probability that the reforestation program will succeed.

Figure 4. Forest block division for forest conservation and reforestation

Various conservation programs have also improved the earnings of poor community members from the collection of non-timber forest products.

As for the contribution on Payment of Ecosystem Service, the Rokha CFo by-laws on articles 30th, 34th, 35th, 37th, 39th, 49th, 50th, 51st, and 52nd mandated for the payments for non-timber forest collections

from the non-members – given strict compliance with the Forestry Law and approval from Forestry Administration. All of the payments have alloted 20 percent of total charging/punishment services in support for Rokha CFoMC.

Lessons and insights

The story of the Rokha CFo is not one of desperation.

Community Forestry Management Committee and Provincial Forestry Administration Conducted Forest/Tree Inventory List. *Photo by STAR Kampuchea*

The members in the Krakor district of Pursat province and in the entire country are facing the same challenges in organizing and managing the grants of forest State land. They are also hard-pressed to legalize the CFo so that they will be able to effectively implement the 15-year CFoMP.

The CFoMP enumerates the activities and action plans to be pursued to mitigate the effects of climate change and enable the community members to better adapt to it.

Even though the required registration with the Ministry of Agriculture, Forestry and Fisheries (MAFF) has not yet been completed, three major lessons from the Rokha CFo can already be derived:

- The committees and community forestry members understand their rights to access, manage, and conserve the forest land areas. Their commitment to preserve the forest, to patrol, and protect it contributed to the integration of the CFo Action Plan into the Anlong Thnaot Commune Investment Development. The community leaders and members have been working more closely together to better manage and implement the activities related to mitigating the ill effects of climate change.
- Local authorities and key institutions supported the CFo and its efforts to preserve and nurture the forests by engaging the CFoMC in the local development planning processes of Anlong Thnoat commune, District Counselor Group of Krakor and representative of CFo at Provincial CFo network of Pursat.
- Major national events contributed in raising awareness of community campaigns in educating the public on climate change and the risks that citizens may potentially be exposed from disasters. These events also encouraged the people to help protect and regenerate Cambodia's forests. ■

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Rising from the Floods: Case Study on Climate Change, Land Tenure Rights, and Resource Management in Kerala, India

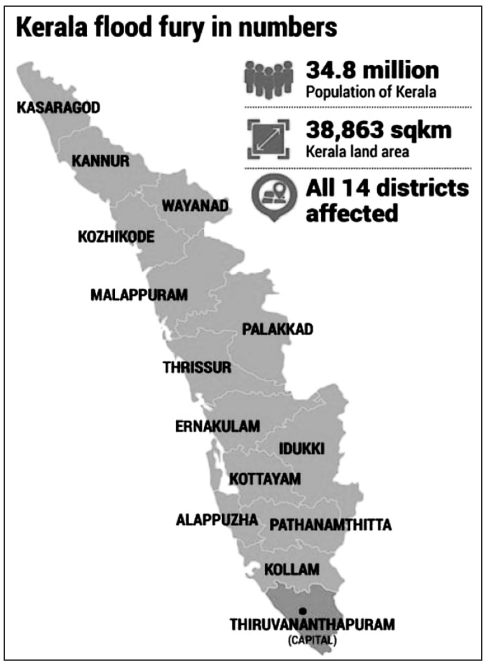
Prepared by
South Asia Rural Reconstruction Association (SARRA)

Kerala, the land of rains and rivers, is used to the monsoon rains that arrive like clockwork every year.

However, the Southwest monsoon of 2018 was particularly severe and caused massive flooding in the bustling Indian State of 33 million people.

The devastating floods were taken by the locals as evidence of climate change given the extraordinarily heavy volume of rain that fell within a short period.

Kerala is considered vulnerable to natural disasters and climate change as it sits between the Western Ghats to the east and the Arabian Sea to the west.



Source: Gulf News, 2018

The extreme rainfall affected Kerala's 14 districts differently although none was spared. The lower areas saw the worst flooding in the State, with floodwaters reaching as high as eight to 15 feet, while those in the hilly areas had to also deal with deadly landslides.

Exacerbating the flooding were deforestation and the loss of vegetation along the riverbanks thus the massive overflow.

Also hit hard were the districts where what used to be marshy places and wetlands were filled up, disturbing the natural ebb and flow of water. Siltation also reduced the ability of the rivers to absorb the extra volume of rainwater that fell that season.

The torrential rain and the resulting mud flow from the landslides indeed wreaked havoc on many parts of Kerala, which is still feeling the effects years after disaster struck.

Natural disaster experienced in the community

The people of Kerala are used to rains. Every year, the State gets about 3,000 mm of precipitation, 90 percent of which comes during the monsoon season. But in 2018, the heavy volume of rain was completely unexpected which was why preparedness was poor.

It was estimated that Kerala received 2,346.6 mm of rainfall from 1 June 2018 to 19 August 2018, greatly above the expected 1,649.5 mm of rainfall. This rainfall was about 42 percent above the "normal" (Hassan, et al. (Eds.), 2020).

This led to massive overflow of the rivers and tributaries leading to devastating flooding in Kerala.

The following are some of the realities observed in the aftermath of the floods in Kerala (Rajendran, 2018):

- "Over the last several decades, and mostly as a result of the increasing population density, environmental changes have been so pronounced in Kerala as to have magnified the effects of the floods. The rivers, including whole water systems and forests, have been increasingly impacted by dams built for irrigation as well as hydroelectric purposes without respecting the ecological sensitivity of the Western Ghats. Traditional industrial units and their attendant investments have contributed to the pollution of water and air" (Rajendran, 2018).
- "The growth of real estate in Kerala not only forced the conventional agricultural sector to regress, it also led to interfering with vulnerable ecosystems. Unregulated construction, also led to more quarrying and mining of river sand, resulting in land reclamation that caused the wetlands and paddy fields to disappear" (Rajendran, 2018).
- The State has to think seriously about how its water bodies can be saved from further encroachment and pollution. The wetlands are excellent carbon storage centers and help reduce the amount of carbon dioxide in the atmosphere (Rajendran, 2018).
- Kerala has to evolve scientific conservation methods to protect the forests and biodiversity in the Western Ghats, which is subjected to encroachments mostly mediated through political networks. The political parties of Kerala have allowed themselves be manipulated by various business interests in rejecting the Gadgil Committee's recommendations, which provided a clear and scientific roadmap to preserve the stability of, and promote ecosystem services in, the Western Ghats.
- The State will have to develop more efficient warning and alert systems (Rajendran, 2018).

Impact on Key Sectors

On Farmers. The cataclysmic floods destroyed not just their crops but also their precious assets such as their home, livestock, and farm equipment. The government did provide immediate relief but it was hardly enough. Many had to take out loans that they now have difficulty paying. It is estimated that the Kerala floods caused 27.23 billion INR worth of crop damage, according to the Kerala post disaster needs assessment report of August 2018.

On Women. When assessing the impact of disasters, government and aid agencies tend to focus only on livelihoods and assets. The impact on women, many of whom are expected to maintain their homes, is usually overlooked. But with the houses left severely damaged by the floods, women had no choice but to cook in the open, making do with earthen stoves or damaged gas stoves (Das, 2019).

Issues in community resilience

The devastation caused by the massive flooding and landslides in 2018 brought to the fore the glaring inadequacies in the government response to the disaster. These include the lack of a community-based early warning system that could have prompted residents to seek higher ground, lack of disaster preparedness at the household level, inadequate awareness of local resources for crisis management, and lack of vital communication tools such as mobile phones, satellite radio, and even traditional media such as newspapers and radio that could have been used for effective crisis communication.

The lack of a unified response from both the community and the government authorities was also highlighted, along with the inadequate response capabilities of the frontline government workers needed in times of disasters such as the police, fire marshals, and medical staff. There was also hardly enough shelters and volunteers to handle the humanitarian crisis. It also became obvious that there was not enough knowledge of first aid that could have been useful in the immediate aftermath of the natural disasters.

What these shortcomings prove is that the bottom-up approach to disaster management must be championed so that vulnerable communities can be transformed into resilient communities.

The residents do have intrinsic knowledge of their environment that can be used in drawing up disaster risk reduction policies. Government institutions must also recognize their shortcomings and acknowledge other stakeholders' bodies of knowledge. Together, they can come up with appropriate policies that will incorporate community strengths and embed proper national and local policies so that the socio-economic impacts and vulnerabilities to natural hazards will be greatly reduced or overcome (MSSRF, 2021).

Effects of natural disasters in the community

Because of where it is situated and its topography, Kerala is vulnerable to flooding, with 14.5 percent of the State's land area considered prone to floods, and up to as high as 50 percent in certain districts. Landslides, meanwhile, are a major hazard in other districts and so are droughts. And because Kerala is one of the most densely populated Indian States, the impact of these natural disasters on the people is magnified.

Many families, for example, lost their primary source of income as some 22,000 hectares of land were inundated and the crops destroyed. Daily laborers were also unable to go to work because of the badly damaged roads. Thousands of houses were likewise either damaged or destroyed.

Lessons and Insights

Experts from the United Nations and the European Union conducted a study on the impact of the Kerala floods and recommended a four-pronged strategy to rebuild Kerala.

These focused on: a) integrated water resources management (IWRM); b) eco-sensitive and risk-informed approaches to land use and settlements; c) inclusive and people-centered approach; and, d) knowledge, innovation, and technology. The key recommendations for post-flood rehabilitation of the Kerala State Biodiversity Board (KSBB) to the State Government of Kerala are aligned with these pillars.

The major recommendations are:

- ***Institutionalize a structure that will bring out and harmonize multisectoral strategies to conserve biodiversity***

  A State-level steering committee of biodiversity must be constituted, for example, to provide guidelines and coordinate actions of all relevant departments, bodies, authorities to achieve conservation and the Sustainable Development Goals.

  It was also proposed that a network of trained officials be formed, a "Virtual Biodiversity Cadre" composed of officials who have knowledge to deal with biodiversity and environment in departments that have to do with biodiversity, so that policies and programs will adhere to conservation goals.

- ***Implement urgent policy reforms***

  The Kerala State Biodiversity Board (KSBB) had long proposed that the government pass a Land Use Policy that will ensure proper land use for a clean environment as well as adequate

food supply. This can be modified by a Land Use Board and then adopted as an overarching policy for all types of land use in the State.

It is also proposed that the action plans of all sectors, including the one on climate change, incorporate biodiversity conservation.

Also, 18 areas in Kerala have been identified as important coastal and marine biodiversity areas, but so far, only one has been declared a community reserve. it is recommended that the conservation of these areas as community-based marine protected sites be considered top priority.

The invasion of exotic species is also becoming a problem; thus, it is recommended that the State impose strict quarantine and biosecurity measures to ensure ecological balance in the State.

- ***Finance biodiversity conservation***

It is proposed that a certain portion of the Panchayat plan fund be used for biodiversity and environment conservation to ensure sustainability of the efforts.

Related to this, the River Management Fund from sand mining revenues can also be used for the restoration of the river and riverbanks, instead of being funneled to construction projects.

The government is also advised to tap international funding for climate resilience to bankroll local projects.

- ***Restore natural river ecosystems***

The devastating floods and landslides that hit Kerala led to heavy siltation and erosion of riverbanks. To rebuild resilience of the economy, it is necessary to fund the restoration of the degraded riverbanks and buffer zones. This will include the protection of the watersheds and restoration of catchment basins.

Deforestation has made the area even more vulnerable to landslides, especially during high intensity rainfall. Thus, it is necessary to accelerate and finance programs to protect watersheds.

The magnitude of the floods and landslides only underscored the dire need to enhance the people's knowledge on the consequences of damaging human activities such as deforestation, quarrying, narrowing, and blocking of draining channels.

- ***Reduce vulnerability and improve resilience***

  Rebuilding Kerala after the disastrous floods and landslides will be challenging, to say the least. But as it goes through the process, the focus should not just be on the engineering part, but also from the view of reducing the State's vulnerability to disasters, such as by repairing damaged riverbanks and protecting watersheds.

  Rebuilding should also mean closer and more frequent consultations with the people who are the most vulnerable to natural disasters enhanced by climate change.

T. Nanda Kumar, a former Secretary, Government of India and former member of the National Disaster Management Authority as well as a resident of Kerala, offers additional recommendations. Among these is to build on the people's knowledge. Build on volunteer strength to build future rescue teams, he added.

Kumar likewise enjoined everyone to learn the harsh lessons of the disaster. There can be no debate anymore on climate change and the shifts in the environment caused by global warming. Accept the fact that development that runs counter to the environment cannot be sustainable. Thus, it is time to use the new awareness to develop a more sound plan for ecologically fragile regions such as Kerala. The floodplains should be kept free of obstructions to mitigate the effects of another flooding due to heavy rains.

Kerala's finances will not be enough to fund its rehabilitation, thus the national government should step in. Kerala can also rally support from both within and outside India to help. There are many well-wishers in and out of Kerala who can make small but significant contributions toward Kerala's sustainable reconstruction.

Kumar also suggested that in the light of the disaster, the State and the higher government should revisit district disaster management plans. These must incorporate inputs from the public. Also, rebuilding should take into consideration proper design and panning of roads and bridges, and even schools, hospitals, and public buildings given the experience from the floods and landslides (FE Bureau, 2018).

Postscript: *Update on the recent effects of and responses to COVID-19*

The devastating Kerala floods of 2018 as well as the Nipah virus outbreak in 2019 led to investments in emergency preparedness and outbreak response that then helped the government and the people respond well to the COVID-19 pandemic (WHO, 2020).

Innovated approaches were adopted and the experience in disaster management came into play following the outbreak, allowing the government to quickly deploy resources and implement a timely and comprehensive response in collaboration with key stakeholders including the people.

The government, for example, set up district control rooms for monitoring, capacity-building of frontline workers, and risk communication. Strong community engagement was also apparent and there were actions to address the psychosocial needs of the vulnerable populations.

Technical guidelines on contact tracing, quarantine, isolation, hospitalization, and infection prevention and control were released early to the frontliners and other departments at the frontlines of the public health crisis.

All these actions helped keep the devastating pandemic under control. ■

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DISCLAIMER

The views of this study do not necessarily reflect of those of ILC.

Peasants adapt, innovate amid disasters, conflict: Case Study on Cilacap Independent Peasant Union, Bulupayung village, Cilacap regency, Indonesia

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Climate change due to the warming of the earth's atmosphere has undisputedly resulted in more frequent natural disasters such as more powerful typhoons and more intense and prolonged droughts.

It has also led to the melting of ice sheets and glaciers, leading to the increase in the volume of the world's seawater.

Based on sea level projections for 2050, a three-decade rise in sea level could lead to more severe flooding in areas that are currently home to 300 million people (Climate Central, 2019). It is estimated that by 2100, the land that is now home to 200 million people will be permanently submerged below the sea line.

Such sea level rise will be most felt in coastal areas in Asia, including Indonesia, making the archipelago especially vulnerable to the adverse effects of climate change.

However, Indonesia itself contributes to global warming, because of the large-scale plantations, mining and forest concessions that spew carbon dioxide into the atmosphere. It is estimated that around 11 percent of all greenhouse gas emissions due to human activity are caused primarily by deforestation (Goodman and Herold, 2014).

According to an analysis by the Center for International Forestry Research (CIFOR), a 10-percent reduction in natural forest cover can increase the frequency of floods by four to 28 percent and the loss of a country's economy and human disasters (FAO and CIFOR, 2005).

Indonesia has a forest area of 120.4 million hectares or about 63 percent of its land area. Within the forest area, the Production Forest (HP) covers 68.8 million hectares or 57 percent of the total forest area. Then of this area, 30.7 million hectares have been handed over to companies (Ministry of Environment and Forestry, 2018).

Indonesia has the ignoble distinction of recording the fastest deforestation rate of 2.9 million hectares from 2005 to 2020. The fastest was seen from 2010 to 2014 when 1.5 million hectares was lost (Ministry of Environment and Forestry, 2020).

This was traced to the development of the forest industry, commercial plantations, and mining activity. Such deforestation led to massive emission of carbon dioxide to the point that Indonesia's emissions represented 4.8 percent of the world's total global emissions in 2017.

It is likely that those emissions will only increase further based on Indonesia's National Medium-Term Development Plan (RPJMN) from 2020 to 2024.

The plan aims to make Indonesia an upper-middle income country but it does not make mention of sustainable development, or economic development that will take into consideration the ecology and agrarian reform to help Indonesia's peasants.

From the New Order Era, peasants and agriculture have not been made the foundation of national development. As a result, most Indonesian peasants are poor and landless.

In the Reform Era, there was a hope that the extractive industries in Indonesia will be more controlled. However, they have not. They continue to have an adverse impact on the economy and ecological protection in Indonesia.

This only means that the agrarian crisis in Indonesia as well as natural disasters will only worsen as large-scale businesses - especially in the forestry sector - continue to operate sans controls. Of particular concern is Java.

According to Forest Watch Indonesia (FWI), Java's forest cover declined by as much as 60 percent from 2000 to 2009. This makes the island one of the areas most prone to natural disasters.

In November 2020, for example, floods and landslides hit dozens of villages in Cilacap Regency, Central Java. The floods and landslides were the worst ever recorded in Cilacap in the last 20 years. At least 46 villages in 15 sub-districts were affected by the tidal flood and led to the evacuation of 4,275 residents (Liputan, 2020).

Bulupayung Village, Cilacap Regency is one of the areas badly hit by tidal flooding due to rising sea levels. The villages of Bulupayung along with Cimrutu, Rawaapu, and and Sidaurip also experienced crop failure due to the flood.

Data from the Consortium for Agrarian Reform (KPA) and the Cilacap Independent Peasant Union (SeTAM) showed that the failed crop area reached 3,347 hectares.

Clearly, there is a link between agrarian and environmental policies on the socioeconomic status of the people, especially the poor. Yet, natural disasters are often seen separate from the discussion on development priorities and the management of agrarian resources.

Indonesia is indeed still lagging behind the region in considering science and environmental conditions as the basis for policy-making. In the meantime, the peasants, indigenous peoples, fisherfolk, and other rural communities bear the brunt of the natural disasters.

They also struggle with agrarian conflicts, adding to their already considerable burden; thus the urgent need for reformulation of Indonesia's economic development policies.

Profile of the Community

Cilacap is a district in Central Java Province that accounts for about 6.2 percent of the total area of Central Java. The terrain is generally flat and as of 2017, Cilacap had 1.84 million people, many of whom are peasants and fisherfolk.

Tenure status of the community

Until now, the lands owned by peasants in the area are still claimed as forest areas managed by the State through State-owned Perum Perhutani.

SeTAM has a pending proposal since 2016 to declare the land as a Priority Location for Agrarian Reform (LPRA). Perum Perhutani, however, has a competing claim and because of this, the economic and social development of Bulupayung village has been hampered.

Even then, the peasants have been able to generate a good livelihood from their harvests. The locals believe that the land can be protected because of its importance as a regional food barn. An encouraging development is the designation of the village in 2021 as a priority location for agrarian conflict resolution.

Overview of the Impact of Natural Disaster Experienced in the Community

Floods Due to Rising Sea Level

The tidal flood that devastated the southern coast of Cilacap regency, including Bulupayung village, was caused by rising sea levels in the Indian Ocean.

In Cilacap, the sea level rises by as much as four to six meters during the rainy season. Making the situation worse is the loss of mangrove forests that could have mitigated the impact of the rising water.

The destruction of the mangrove forests in the Segara Anakan area can be blamed on the large capital investments in 1980 to 1990. The money went into intensive aquaculture cultivation that led to the large-scale conversion of mangrove forests (Yulianti, 2021).

Table 1. Reduction of Segara Anakan Mangrove Forest Cover

Year	Hectares
1903	6,450
1984	3,270
1992	1,800
1998	1,487
2007	800
2015	400

Source: Endriatmo Soetarto, 2011 and Citra Pramesti, 2019

The deforested mangrove forests were never restored by the entrepreneurs to the detriment of peasants, fisherfolk, and the communities that are now suffering the consequences in the form of tidal floods on their homes and farms.

The peasants, especially those living in Bulupayung village, know that the tidal flood that has been devastating to their land is not caused by a mere weather anomaly.

Deforestation of mangrove forests to benefit investors, combined with the poor forest management in Cilacap, are man-made problems that have worsened the impact of seawater rise.

Before tidal floods again hit the area from February to March 2021, peasants were preparing to welcome the harvest season. Now they have to deal with the destruction of their rice fields due to the deluge of seawater.

Due to this tidal flood, the peasants in Bulupayung Village will have to deal with crop failure they can ill afford. From 2020 to 2021, peasants have had difficulty in growing rice and were able to harvest just once.

Effects of the natural disasters on the community

Tidal floods and the devastation that they cause are just getting worse, but the government is not putting enough effort to handle the ever-worsening situation.

Aerial view of the tidal flood conditions in Cilacap. *Source: Detik.com and Tribun Jateng, 2021*

In addition, the damage is considerable. In Bulupayung village, at least 3,750 houses in 16 villages were submerged in seawater (Liputan, 2020).

Livelihood and Economic Situation

Based on the discussions of KPA with SeTAM peasants, the economic impact of this tidal flood reached more than IDR 12 billion or the equivalent of USD 831,000, primarily because of the crop failure in the first planting season in some 515 hectares of ricefields.

They usually harvest three times a year but because of the floods, they were down to just twice.

The peasants can plant rice in March to April, but that will mean having to grow the crop during the dry season that runs from May to August 2021, which clearly threatens the availability of water for their fields.

This means that peasants in Bulupayung are still at risk of crop failure due to changes in their agricultural season calendar.

Table 2. Impact of Natural Disasters in the Area

Indicators of Change Due to Disaster	Bulupayung Village, Cilacap Regency	
	Before Natural Disaster	After Natural Disaster
Planting season calendar	October	March
Harvest season calendar	January	June
Type of Agriculture	Organic Rice Field	Organic Rice Field
Agriculture Commodity	IR Rice Variety, Logawa, Muncul	IR rice variety, Logawa and Inpari Unsoed 79 Agritan
Amount of dry grain production per one hectare	4,000 Kgs	0 Kg
Total rice production per one ha	2,600 Kgs	0 Kg
Average price of rice at peasant level	IDR 9,000	IDR 0
Peasants' rice sales income in one harvest for each ha of rice fields	IDR 23,400,000	IDR 0
The cost of seeding rice for one ha	IDR 250,000	IDR 250,000
Number of seedlings planted in one growing season	Once	7 times
The average duration of natural disasters, floods, tidal waters	None	20 days to 30 days
Number of affected peasant families	None	1,405 households
Area of agriculture affected	None	515 hectares
Impact on other agriculture	None	■ Irrigation is broken ■ Damaged farm roads

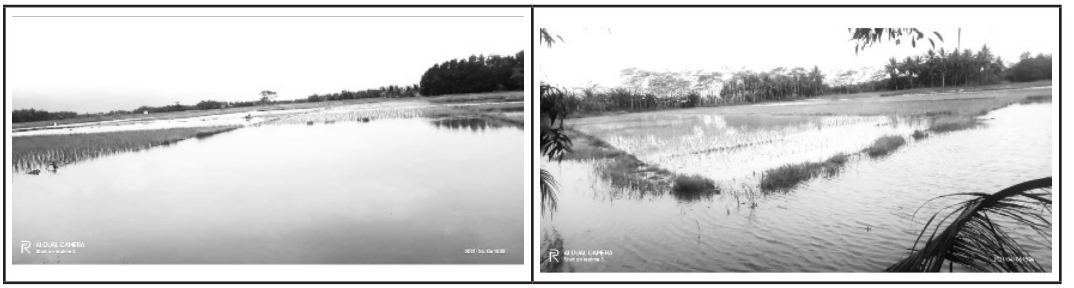
Source: Interview with Karya Makmur Peasant's Group Leader, 19 February 2021

Social Impacts

Based on the data from the Central Bureau of Statistics, Patimuan district is one of the leading rice granaries of Cilacap. This means that a crop failure in the area triggers a local food crisis that requires the local government to import food from outside Cilacap regency.

The floods also adversely affected the 14.6-kilometer road that some peasant members of Bulupayung SeTAM painstakingly built from their own funds that totaled over 1.2 billion Rupiah from 2017 to 2020.

The same floods that submerged their rice fields also cut off and damaged this road that they built to transport their harvest to the markets, making it difficult for the peasants to carry on their daily activities.



Peasants' fields are flooded by tidal water. *Photo by Cilacap Independent Peasant Union, 2021*

Tenure Security and Land Use

As if the economic losses were not hard enough, the frequent tidal floods in Bulupayung have put the peasants' lands in danger of being designated watershed restoration sites or expansion areas for forest conservation forests by the government.

This means that there is a possibility that they will lose their rights over the land, and add another layer to the current agrarian conflict between the peasants and Perum Perhutani, a State-owned company that manages forests on Java.

Perhutani has long-standing forest area claims and have complicated the economic and social development of the area. In addition, as what usually happens, peasants get the wrong end of structural policies whenever precious agricultural land is converted or designated as non-agricultural areas.

Interventions and/or approaches taken in response to issues

These devastating disasters, however, have failed to dampen the enthusiasm of SeTAM peasant members to push reforms. They have come together despite the daunting challenges to implement measures to minimize the impact of tidal flooding in the future.

The peasants, for example, have been replanting mangroves along the southern coast of Cilacap. They have been doing so on their own, spending for the program themselves and implementing their own techniques, separate from the government.

They have also agreed among themselves to preserve the mangroves and not cut them, realizing that they are a very effective natural protection against flooding. It is not mandatory but because it has been proven effective, the surrounding communities have followed suit and it has also won the support of the local government.

Even non-members of the organization are following the rule prohibiting the cutting of mangroves. The surrounding communities are feeling thus the benefits of having a healthy mangrove ecosystem.

Seedling and Nursery of mangrove tree seeds by SeTAM members. *Photo by Cilacap Independent Peasant Union, 2021*

Response of SeTAM to the effects of the natural disaster

Aside from working together to mitigate the impact of the tidal floods, the peasants of Bulupayung Village have also continued to pursue agrarian reform programs.

For them, agrarian reform concerns the following: a) how much land can be planted and owned by peasants, indigenous peoples and agrarian communities in rural areas; b) how clean is the river that will irrigate agricultural land; c) how strong is the market that will consume or buy the people's agricultural products; and, d) how much forest is helping prevent global warming.

In Bulupayung, agrarian reform at the land ownership stage is based on land tenure data to determine inequality among peasants. When and if applicable, a peasant's land is reduced to be given to others with smaller pieces of land.

As for land use, peasants have conducted consultations to determine the proper or appropriate use of land in their area, taking into consideration needs for environmental conservation, agriculture, housing, water resources, youth reserves, and others.

Then for the crop itself, the peasants have succeeded in finding a saltwater-resistant rice variety, thanks to the collaboration with Sudirman University that began in 2020. The variety is called

Unsoed 79 Agritan and the member-peasants had their first harvest of the rice variety in 2020 and have continued since. Aside from being able to grow despite saltwater, the variety is also resistant to pests. Land planted to this variety can produce 18 percent more paddy rice.

As survival is paramount, the peasants have agreed that they have to first make sure that the community has enough rice before they can sell any excess to the traditional markets and nearby cooperatives. The rule is, not all of the rice harvest can be sold.

Lessons and Insights

The regulation of agrarian resources needs to be oriented towards equitable and sustainable socio-economic development.

Peasants, fisherfolk, indigenous peoples, women, and other rural communities must be the main beneficiaries and targets of any development agenda, especially as they usually suffer the consequences of indiscriminate use and control of agrarian resources by massive corporations.

Significant corporate profits and State revenues do not compensate for the ecological and economic losses that entire communities suffer.

The Indonesian government, unfortunately, has so far only pursued profits that did not even end up in State coffers, but went to the investors.

As a result, there have not been any restrictions on land tenure for extractive industries such as plantations, forestry, and mining, an ill-advised policy that has negative implications on the environment and the people.

Because of this blind pursuit for profit, Indonesian laws and policies have been crafted to benefit the interests of entrepreneurs. Evidence of this is the ratification of the Job Creation Law that has been soundly rejected by peasants and laborers in Indonesia.

Indeed, policies have so far only largely benefited the corporate sector and not the poor and marginalized, and not even the government itself that needs revenues for social protection programs.

Data from the Indonesian Ministry of National Development Planning (BAPPENAS) show that as of 2019, as much as 90 percent of forestry company concessions are inactive, which means that the forests cleared for licensing are not bringing in the positive economic impact on the Indonesian economy. Thus the forests, entire ecosystems, have been sacrificed for virtually nothing.

What is worse is that these concessions have only contributed to raging agrarian conflicts and structural poverty in the rural areas.

Similarly, the data from BAPPENAS indicate that as of 2019, Indonesia has 68.8 million hectares of production forest, of which 14.5 million hectares are in agrarian conflict status, 32 million hectares are not forested.

What happened to KPA members in Bulupayung village is illustrative of the millions of small farming families across the globe who are affected by global warming and natural disasters. Yet despite this, the Bulupayung peasants have proven that they can meet these challenges and chart their own economic destiny.

In the midst of the agrarian and ecological crisis in Cilacap, SeTAM peasants are still able to realize economic innovation and natural disaster mitigation independently, which can be an example for peasant communities in other regions to follow.

Recommendations

Indonesia first needs to have a credible and complete record of the total area controlled by plantations and forestry, and mining investors. This record will then become the basis for implementing agrarian reform.

This record will provide a clear portrait of inequality, agrarian conflicts, and ecological damage caused by unbridled corporate and entrepreneurial activity. Knowing the extent of the land controlled by these interests will then provide policymakers basis for making decisions that will benefit the majority, such as by limiting the amount of land that a group of companies can own or control.

Indonesia must also be able to calculate the amount of land that extractive industries can own or control. This is expected to go a long way in reducing inequality in land ownership, in that only a few end up controlling the majority of Indonesia's land while the poor and marginalized have to make do with so little.

The government can take wisdom from a provision in the 1979 Peasants' Charter which said: *"Give precedence in the distribution of acquired assets to established tenants, smallholders and landless agricultural workers, with particular attention to the most deprived groups, and strengthen such redistribution with programs for improving productivity, including the formation of cooperatives and other forms of associations of peasants with comprehensive state assistance."*

The Charter was passed at the 1979 World Conference on Agrarian Reform and Rural Development (WCARRD) in Rome in a bid to make agrarian reform a priority agenda for a country to develop

its economy, through land redistribution for landless peasants, farm laborers, and poor rural communities.

The Peasants' Charter likewise called on governments "*to ensure that the activities of foreign investment in developing countries, in particular by transnational agro-industry corporations, are not inconsistent with and do not impede the accomplishment of overall economic and social development objectives.*"

The 1979 Peasant Charter emphasized the importance of community-based economic development, especially peasants in developing countries. All forms of investment that cannot be responsible for many agrarian conflicts and ecological damage occurred must be stopped.

In the short term, the regional government of Cilacap regency is called on to support the struggle of SeTAM's member-peasants by issuing regulations - such as mangrove reforestation - that can help mitigate the adverse effects of natural disasters that are happening more frequently and more severely because of climate change.

The local government of Cilacap regency also needs to support the production of saltwater-resistant rice varieties seeds to be planted by peasants in other areas and provide fair market access so that peasants can easily sell their produce.

The Impact of COVID-19 on Food Security and Agriculture

The global outbreak of COVID-19 has led to crippling public health and economic crises across the globe and Indonesia is no exception. Bulupayung village has felt it firsthand.

Because of quarantine restrictions to arrest the spread of COVID-19, the people's purchasing power has declined. The already vulnerable peasants have had to bear additional difficulties of bringing their produce to the urban markets that need it, thus affecting their livelihood.

The peasants of Bulupayung have, fortunately, been able to cope with the COVID-19 pandemic by finding ways to reach the external markets while securing their own food supply despite crop failures.

Peasants have calculated the needs of each family and group. Every farming family is required to store at least 100 kilograms of rice for themselves and donate 10 kilograms to the organization as food reserves. Because of this, the peasants are assured of healthy food and are able to protect themselves from the transmission of COVID-19.

The ability of peasant unions to cope with the food crisis has proven to be very effective when the government's economic policies are unable to reach them.

Given this, it can be concluded that the peasants here and in other parts of Indonesia have the capability to do even more if the right environmental and agrarian reform policies are in place. ■

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Kyrgyzstan: Of pastures, water, and climate change

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The Kyrgyz Republic is one of the most vulnerable countries to climate change in the Central Asian region (Dzhaparova, 2021). This is due to its predominantly mountainous terrain, high dependence on glacial water for agriculture and energy, the importance of natural resources as a source of livelihood in rural areas, and the need for electricity for water supply (Jalilova, 2018).

The consequences of natural disasters brought about by climate change cannot be overestimated, especially in rural areas, as these have a far-reaching impact on access to natural resources, tenure and land systems, health and food security, among others. Evidence of climate change in the Kyrgyz Republic cannot be disputed. For example, the last 20 years have been the hottest on record. In addition, annual precipitation has decreased significantly over the past 50 years (Jalilova, 2018).

Under such conditions, the issues of environmental protection, ensuring equitable access to natural resources, guarantees of tenure and land use systems, as well as adaptation and mitigation of the consequences of global climate change come to the fore. There is indeed a direct link and dependence between the existing system of tenure, management and use of natural resources and adaptation to climate change and the mitigation of its consequences.

Brief information on Kyrgyz Republic

The Kyrgyz Republic is located in the center of the Eurasian continent in the northeast of the Central Asia region. With a total land area of 199,950 square kilometers, the country is divided into three administrative levels: regions and cities of Bishkek and Osh, districts, and rural administrations.

There are more than 20 ecosystems in the Kyrgyz Republic, from glaciers and snowfields to deserts, rangelands, and forests. The forests cover almost half of the country's territory; however, the forest cover is relatively small, accounting for 5.6 percent of the total land area. The climate of the Kyrgyz Republic is continental with hot summers and cold winters, although the conditions vary greatly - from a slightly arid continental climate on the mountain slopes to a "polar" climate in the high-mountainous regions of the Tien Shan and Pamir.

The variety of natural and climatic conditions and landscapes of the Kyrgyz Republic is categorized into four climatic zones:

- **Valleys** - foothill zone (up to 900 to 1,200 meters), characterized by hot summers and moderately cool and snowless winters with little precipitation;
- **Mid-mountain zone** (from 900 to 1,200 meters to 2,000 to 2,200 meters) with a typical temperate climate with warm, rather humid summers and moderately cold "snowy winters;"
- **Alpine zone** (from 2,000 to 2,200 meters to 3,000 to 3,500 meters), which varies between cool summers and cold, sometimes snowy, winters. July temperatures are 11 to 16 ° C. Winters are long (November to March), in cold months the temperature ranges from -10 ° C to -3 ° C; and,
- **Snowy zone** (3,500 meters and above), characterized by a harsh and very cold climate. This is a zone of snowfields, rocks, glaciers and a belt of moisture accumulation. Even in the lower reaches of this zone, the average July temperatures do not exceed for to seven degrees Celsius; in January they go down to -19 °C to -22 °C (Ministry of Agriculture of the Kyrgyz Republic, 2014).

Mountains account for more than 90 percent of Kyrgyzstan's territory and because of this, farming is possible on only about five to seven percent of the land, almost all of which depend on irrigation. In addition, of this land, pastures account for 80 percent (FAO, 2020).

The continued degradation of pastures, which are "the exclusive property of the State," is a serious threat to the country's food security because it means that the productivity of the scarce farmland continues to decline. As of 2015, 49 percent of the total pasture area in Kyrgyzstan have been degraded (Shimizu, 2006). (See Table 1)

Table 1. Degree of pasture degradation in the Kyrgyz Republic (in %)

Pasture type	Area (Thousand ha)	Degraded area (Thousand ha)	Degraded area (in %)
Summer (pasture areas located at ≥2,500-meters above sea level [masl])	3,951	1,432	36
Spring to autumn (≥1,500 masl)	2,756	1,378	50
Winter (<1,500 masl)	2,440	1,718	70
Total area	**9,147**	**4,528**	**49**

Source: Program for the development of pasture management in the Kyrgyz Republic for 2012 to 2015

Factors causing land degradation include excessive grazing or abandonment of pastures, deforestation, and natural disasters. As such, the ability of the soil to absorb and retain water is lost, thus it is eventually washed out or eroded.

In addition, a source of concern is the state of the republic's water resources, considering that Kyrgyzstan is highly dependent on irrigation to ensure sustainable development and food security.

In the Kyrgyz Republic, only 22.5 percent of irrigated lands are fed with water from reservoirs; full water supply to the rest of the lands is not guaranteed (Water Resources Service of the Kyrgyz Republic, n. d.).

It is ironic that despite the abundance of water resources, the Kyrgyz Republic is constantly faced with a shortage of water, both for irrigation and for drinking. This trend intensifies in dry periods, and according to forecasts of climatologists, this deficit will be felt more and more every year.

Climate Change and Land Tenure

The most pressing issues today related to land policies include ensuring equitable access to land resources; improving tenure systems, especially in low-lying coastal areas at high risk to the adverse effects of climate change; and, undertaking measures to protect the poor and vulnerable from loss of livelihoods, and developing opportunities for them to directly benefit from climate change mitigation measures (Taylor, 2009).

For pastoralists, improving their livelihood through traditional and novel approaches to land and livestock management is likely to be needed. Reciprocal relationships between pastoralists and agriculturalists will play a key role in future climate change and land tenure development.

A legal and policy framework for promoting informal social institutions to regulate access to resources at sustainable levels, which could be based on traditional resource management institutions and informed by modern institutions, is preferable to simplistic attempts to increase productivity through expanded access to resources.

It will be most effective and appropriate to implement land tenure and use policies that maximize security of land and property rights, consolidate and expand people's control over land and natural resource assets, and create incentives for sustainable use of the environment.

The general messages about the realities of climate change in relation to land tenure are not different from the principles of progressive land policies now widely recognized and promoted by international development agencies.

These include: a) provision of secure land rights under a diversity of forms of tenure, including the recognition of customary rights and the devolution of responsibilities for land registration and management to more local levels; b) promoting land access for disadvantaged groups including women and indigenous peoples; c) upgrading of tenure and infrastructure in urban informal settlements; d) improving equality in the distribution of land; and, e) better governance in land administration, in particular to ensure equitable access to and good use of public land.

In general, we believe that there is a need for tenure policies that provide both: a) greater security in land and property rights so as to consolidate and extend people's control over land and natural resource assets and provide incentives for good environmental stewardship, and b) greater flexibility to accommodate changes in land use and settlement patterns so as to provide clear options for people who may be prompted to move because of climate related threats to human settlements and livelihoods.

Climate Change and Emergencies

In response to the growing challenges to sustainable management of natural resources due in part to climate change, the Kyrgyz Republic has ratified a number of international treaties, including the UN Convention to Combat Desertification (1994), United Nations Convention on Biological Diversity (1992), United Nations Framework Convention on Climate Change (1992), Kyoto Protocol (1997), and Paris Agreement on the United Nations Framework Convention on Climate Change (2015).

The Kyrgyz Republic realizes the particular importance of environmental protection and rational use of natural resources and takes all necessary measures to fulfill the provisions of these documents. The State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic (SAEPF) is responsible for the implementation of the obligations of the Kyrgyz Republic under the Framework Convention on Climate Change and the Kyoto Protocol thereto.

The government in 2012 passed a resolution establishing the Coordination Commission on Climate Change Problems (CCCC), under the leadership of the Vice Prime Minister of the Kyrgyz Republic in charge of environmental protection.

The main goal of the Coordination Commission is to lead and coordinate the activities of ministries, departments, and organizations to fulfill the obligations of the Kyrgyz Republic under the UNFCCC and the Kyoto Protocol.

The Kyrgyz Republic is acutely aware of the catastrophic effects that irreversible climate change will have on the country's environment, economy, and society. The situation is no less than critical.

Adaptation and mitigation measures must be put in place and in Kyrgyzstan, the design and implementation of these measures should be seen as part of a strategy to consolidate the country's achievements in achieving the Millennium Development Goals and then the Sustainable Development set by the United Nations to address poverty and human development.

Some of the main elements of adaptation activities are improvement of the regulatory legal framework for adaptation to climate change; improvement of information tools for monitoring climate change processes and assessing climate risks; and, organization and promotion of transboundary cooperation on adaptation to climate change.

The Kyrgyz Republic is pressed to act swiftly due to its high vulnerability to climate change risks. A decrease in water resources and a change in temperature due to climate change, for example, will have a direct impact on the quality of its scarce land used, crop yield, and consequently, food security.

Studies carried out by the Institute of Water Problems and Hydropower of the National Academy of Sciences of the Kyrgyz Republic show that the fertility of the country's arable lands will decrease as a result of climate change, and the extent of deserts and semi-deserts will expand from 15 percent of the land area (in 2000) to 49.7 percent (in 2100). The territory and productivity of high-altitude pastures may decrease by up to 50 percent, while the projected loss of spring to autumn ephemeral pastures will be a staggering 70 percent (United Nations Development Programme in Kyrgyz Republic, 2009).

Increases in the frequency and severity of floods (and associated riverbank erosion) and droughts are likewise projected because of higher temperatures and decreased snowfall. In particular, river floods and waterlogging in spring, heat loads in summer, landslides and flash floods, and snowmelt in summer will be increasingly felt; precipitation in the form of rain and snow is expected to increase with the frequency of heat waves.

The projected decrease in crop yields and livestock productivity will have the most adverse impact on the population, and will contribute to a further increase in food prices, worsening the socio-economic situation, especially of rural residents.

It is therefore necessary to improve the efficiency of the use of land resources and the adaptation of agriculture. Main measures include:

- optimization of location and specialization of agricultural production;
- selection work for the cultivation of drought-resistant and salt-tolerant crops;
- integrated pasture management and development of grazing livestock, taking into account adaptation to climate change;
- improvement of the appropriate agricultural infrastructure to better adapt to the negative effects of climate change; and,
- improvement of the food security monitoring system and creating a yield forecasting system.

Role of Local Communities in Climate Emergencies and Disasters

Local communities play a central role in the planning and management of the country's pasture, forest and water resources, and are key players in the rapid response and prevention of natural disasters from climate change. Rural residents are united into community groups that manage a specific natural resource. These include water users' associations and pasture committees. The functions of these entities are enshrined in the Laws of the Kyrgyz Republic "On Associations of Water Users" and "On Pastures."

On Pasture

With the adoption of the Law of the Kyrgyz Republic "On Pastures" in 2009, the majority of rural residents has created 454 Pasture User Associations (PUUs). The said law provided for the transfer of the rights of planning, use, and management of pasture resources from the State to local communities. As the rightful owner of the land, pasture users began to take responsibility for these lands and has allowed them to improve pasture conditions, repair livestock paths, bridges, and other infrastructure elements. They have been able to solve other problems that hinder effective, efficient, and equitable use of pasture resources.

The above processes have enabled for the practice of long-term planning, unity and unification of pasture users; community mobilization; improved joint efforts to prevent natural disasters and address emergency situations; increase initiative in the community; strengthen inter-generational communication; and, improve mutual understanding and mutual support of rural residents on the use of natural resources and the associated conservation of biodiversity. At the same time, there has been an increased level of involvement of women and youth in the planning, management and use of pasture resources, and strengthening the rights of the local population to manage pastures, and reducing the level of conflicts.

On Forests

Joint forest management approaches were also employed by organized rural communities through the planning and implementation of measures to regulate the impacts of climate change on forests. Aimed for the achievement sustainable forest management with the participation of local governments, the population, and local communities, joint forest management has become a proven method of climate change adaptation and prevention of emergencies in rural areas.

On Irrigated Agriculture

Following the adoption of the Law of the Kyrgyz Republic "On Associations of Water Users," 487 water user associations have been created with the aim of operating and maintaining irrigation systems and managing irrigation water in their service areas. The norms of the Water Code of the Kyrgyz Republic also provide for the consistent expansion of the participation of water users, the public, and the sectors involved in the planning, formulation, implementation, and monitoring of government decisions.

The role of local communities in emergencies and natural disasters cannot be overemphasized. They often play an important role in building resilience to disasters and enhancing environmental security by maximizing awareness and encouraging civic participation in disaster preparedness activities. This, however, requires appropriate knowledge and capacity on the part of local stakeholders, as well as close collaboration and clear division of responsibilities between local governments, civil society and the private sector. One of the most effective in this case are preventive measures that rural residents are successfully implementing on the ground.

The irrigation sector is more vulnerable to natural disasters (mainly mudflows). To protect the rural population from mudflows and irrigation systems, the construction of protective dams is being practiced, and field exercises are being conducted with local stakeholders.

Planting elm seedlings were also being carried out to create buffer zones on along the riverbanks to prevent the risks of mudflows, floods, and coastal erosion.

Agroforestry – a holistic approach to taking advantage of the benefits of combining shrubs and trees with crops and/or livestock – has once again proven to be cost effective and effective. This approach combines agricultural and forestry technologies to create more diverse, beneficial, cost-effective, productive, and sustainable land use systems. The introduction of agroforestry methods is aimed to contribute to the adaptation of the landscape to the changing climate, help combat land degradation and desertification, protect biodiversity and soil fertility, provide a healthier water system, and reduce the likelihood and intensity of forest fires. Tiered farming and agroforestry systems help reduce exposure to hazards while meeting the needs of local communities for food, firewood, feed and timber. In a multi-storey planting environment, crops under tall trees or horticultural crops withstand shade and provide the microclimatic conditions required for all crops.

Recommendations and Lessons Learned

The forms of land tenure, determined by law or custom, determine who can use what resources, for how long, and under what conditions.

The guarantee of tenure and use of land resources is given based on the legislation in force in the country and the established traditions and customs at the local level. These give confidence that human rights to land will be recognized and protected.

People with precarious land tenure, however, face the risk that their land rights will be compromised by competing claims or even lost through evictions.

The effects of climate change on their lands disproportionately affect rural residents, especially those who do not have tenure and use rights (including those who have some restrictions on gender, nationality, age), since they are tied to the land and cannot switch livelihoods easily.

The lack or low level of guarantees for tenure and use of natural resources increases the vulnerability of the poor and reduces the ability of farmers, pasture users, pastoralists, and urban populations to cope with the changes caused by climate change.

Timely documentation and wide dissemination of good practices demonstrating a direct link between improved tenure, use, land management, and the ability of the poor to adapt to climate change will enable preventive action to adapt and mitigate the effects of climate change.

The need to restore many elements of the nomadic lifestyle of pasture users through a combination of traditional and modern approaches to land management and animal husbandry is becoming evident.

Such synergies will play a key role in the future in the development of policies for adaptation to climate change and sustainable land tenure. The legal and policy framework for the promotion of informal social institutions is necessary for the quality regulation of equitable access to land resources on a long-term basis, based on long-term traditional principles of natural resource management and modern planning and monitoring mechanisms.

The critical issues that should be addressed by land policy are: ensuring equitable access, tenure and use systems in areas subject to significant direct risks of climate change, especially in low-lying coastal areas at serious risk; accelerated securing of land tenure to improve households and the ability of communities to adapt to the impacts of climate change and food security; and, undertaking measures to protect the poor and vulnerable from loss of livelihoods and developing the opportunities available to them to reap direct benefits from climate change mitigation measures.

Governments should integrate into their national land policies a variety of effective climate change adaptations with broad potential for use, and regularly identify gaps in understanding the impacts of climate change on specific regions and change the legal framework for land use accordingly.

Conclusion

The direct impacts of climate change on land use systems and land-related employment have the potential to have a range of impacts on access to and ownership of land, with direct and indirect negative impacts on both basic livelihoods and human well-being.

Despite the widespread publicity of climate change issues, there is still very limited understanding of the relationship between climate change impacts, social and political responses, and land tenure. The links between climate change and land tenure issues can be multiple, complex, and indirect. However, the impacts of climate change and volatility are being felt through transformations in natural ecosystems, land opportunities and land use systems. More and more, these changes will lead to increased pressure on dwindling land stocks for both the agricultural sector and industrial use.

As a result, land issues and policies are key factors in adaptation planning when there is a need to strengthen land tenure, improve governance in high-risk settings, and secure access to land for populations for whom land is their main livelihood.

An overview of the realities of climate change in relation to land tenure does not differ from the principles of progressive land policy, which are now widely recognized and promoted by international development agencies.

These include: securing land rights under various forms of tenure, including the recognition of customary rights and the transfer of responsibility for land registration and administration to local levels; promoting access to land for the poor, including women and youth; improving tenure conditions and infrastructure in informal settlements; increasing equity in the distribution of land; decentralized natural resource management and an inclusive framework for stakeholder engagement in conflict management; encouraging a fair rental market to improve the system of interconnection of supply and demand for land; and, effective land management to ensure equal, equitable access to and proper use of public land.

On the other hand, there will obviously be a need for better regulation of land use in risk areas, which could limit the overall availability of land and lead to the need to expedite provision elsewhere.

In practice, however, the relatively high costs of resettlement or compensation for land loss and large-scale settlement of property rights, coupled with the likelihood of climate change impacts on unsafe property tenure in risk areas, could lead governments to ignore tenure security issues for vulnerable groups.

As a result, it is not enough to simply promote positive land policies, responses to the risks of climate change need to be developed and a more systematic integration of land policies with climate change adaptation planning.

In general, tenure policies are needed that will both ensure greater security of land and property rights in order to consolidate and expand people's control over land and natural resource assets, provide incentives for sustainable use of the environment, and provide people in expected contexts with more demographic mobility and flexibility in adaptation and changes in land use and settlement structures to cope with climate-induced threats.

These two elements of security and flexibility are important factors in current land tenure policies. Thus, land policy should be aimed at addressing the use and management of land resources, especially in those territories that directly face significant direct or indirect risks from climate change.

At the same time, it is necessary to take into account the possibility of granting guaranteed rights to households to land in areas safe from emergencies, access of local communities to their direct use and appropriate infrastructure.

Inventory of current settlements and vacant lands, documenting informal rights, assessing the suitability of land and climatic hazard, various natural and climatic risks - this is just a small list of actions by local authorities to improve and equitable distribution of land.

In addition, government measures to protect the poor and vulnerable from potential loss of livelihoods and to increase the opportunity for direct benefits from climate change mitigation measures (e.g. deforestation/reforestation, etc.) are critical.

All of these measures need to be targeted at disproportionately affected populations (women, vulnerable and other social groups at particular risk due to poverty, poor access or limited access to land and natural resource assets), taking into account the existing impacts of natural and other hazards and limitations on adaptive capacity.

Land policy is one of the key elements of adaptation planning. Thus, in addition to improving and protecting against climate change, land policy should include not only land inventory, regulation of tenure, resettlement and improvement of land use efficiency, but also to apply preventive and adaptive measures according to the specific set of climate change impacts and taking into account the existing legal and institutional framework.

Safeguarding tenure rights is a critical element of land restoration, leading to increased agricultural production, better living conditions and helping to combat climate change. Clear and secure land tenure is critical to sustainable land use because disputes over land ownership and control create uncertainty and discourage investment.

Investors are deterred from financing potential land restoration projects and work when risk assessments reveal precarious land titles and unclear land control. Secure land tenure and good governance are especially important in situations involving women and young people, who are often disadvantaged by traditions and customs or local practices that favor men. Vulnerable groups such as youth and women in land-dependent communities cannot achieve decent livelihoods without land and access to productive resources.

Developing strong governance is another important factor in attracting and securing investment in agriculture, which is the main source of livelihoods and an essential element of any comprehensive landscape restoration and development effort.

Ensuring the rights of villagers to access land is a critical factor in their ability to respond to climate change. People with secure land tenure are more motivated to invest in farming practices that help mitigate climate change.

Such systems increase agricultural productivity and income, and increase resilience to unpredictable and adverse weather conditions, including drought. Ensuring social inclusion and cohesion around land tenure is also key to rural resilience as it reduces conflict and promotes sustainable management of natural resources by farmers. ■

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"Kyrgyzstan: Of pastures, water, and climate change" is a sequel to the 2018 Land Watch Asia Monitoring Reports, which were acclaimed by the relevant academia, practitioners, and civil society as an innovative and practical endeavor to track the state of land reform of a country.

This study aims to demonstrate the relationship and dependence between and among the existing system of tenure, management and use of natural resources, and adaptation to climate change and the mitigation of its consequences.

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DISCLAIMER

ACRONYMS

AA	Aiyl Aimak (administrative-territorial unit in the countryside)
ANGOC	Asian NGO Coalition for Agrarian Reform and Rural Development
AO	Aiyl Okmotu (local government)
APU	Association of Pasture Users
CANR KR	Comprehensive Assessment of Natural Resources of Kyrgyzstan (2008 to 2010)
CCCC	Climate Change Coordination Commission
FAO UN	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
MALRFI KR	Ministry of Agriculture, Land Reclamation and Food Industry of the Kyrgyz Republic

MES KR	Ministry of Emergency Situations of the Kyrgyz Republic
NAP	National Action Plan
NAS KR	National Academy of Sciences of the Kyrgyz Republic
NLA	Normative Legal Acts
NSC KR	National Statistical Committee of the Kyrgyz Republic
NUWUA	National Union of Water Users Association of the Kyrgyz Republic
PC	Pasture Committee
PUA	National Association of Pasture Users “Kyrgyz Jayity”
RG KR	Resolution of the Government of the Kyrgyz Republic
SAEPF KR	State Agency for Environmental Protection and Forestry of the Kyrgyz Republic
SFF KR	State Forest Fund of the Kyrgyz Republic
SRS KR	State Registration Service under the Government of the Kyrgyz Republic
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WC KR	Water Code of the Kyrgyz Republic

When climate change disaster strikes: The Case of Bategada village in Chure rural municipality, Nepal

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Nepal is a small economy sandwiched between world powers India and China with unique geophysical features that also expose it to multiple natural hazards.

With a population of around 30 million, Nepal is ranked fourth on the Global Climate Risk (Eckstein, et al. 2019 as cited in UNDRR, 2019) and 73rd on the Global Hunger Index with a score of 19.5 in 2020 (Global Hunger Index, 2021).

The Nepalese government is not blind to the country's vulnerability to climate change. Thus, it has been exerting efforts over the past 10 years to align policies on disaster risk reduction and management to the 2030 Agenda for Sustainable Development, the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCC), and the Sendai Framework for Disaster Risk Reduction.

Despite these, however, Nepal remains highly susceptible to geological and climate-related disasters due mainly to its diverse topography and weak economy. It also suffers from a low awareness of disaster risks, exacerbating the country's overall vulnerability to the adverse effects of climate change.

Study area: Bategada Village

Illustrative of the adverse effects of climate change is the village of Bategada in the southeastern part of the Kailali District's Chure municipality, which is deemed a fragile landscape. Its location below the hills and above the *Tarai* plain makes it especially vulnerable to both floods and landslides. Most of the people living here on 13.6 hectares (20 *Bigha*) of land are from the Magar ethnic group, with each family living on land that used to be designated as forestland ranging from 1 *Kattha* to 18 *Kattha* (0.034 to 0.612 of a hectare).

Due to its remote location, it is difficult for the estimated 50 households in the area to access social services. It is five kilometers away from the nearest education and market hub, for example, and it is often cut off from the nearest village during the monsoon season when the river rises.

Its location has also made the land tenure situation of the community insecure. For one, while geographically the village is under the Chure rural municipality, the Gauriganga municipality is actually more accessible. Because of the lay of the land, it takes the residents three days to walk to the Chure offices, while Gauriganga is only five kilometers away. However, with the administrative rules and the continuing debate over boundaries, the Bategada people's livelihood has been affected, particularly on raising livestock.

The government authorities had failed to consider the community's needs and realities before drawing up the demarcation line separating the two local levels and this has made the formalization of their land rights over their land a daunting challenge.

As the village is isolated and remote, their representation in the meetings at municipal or ward level has remained rare. Therefore, their voices have remained largely unheard.

Fortunately, the Government of Nepal formed a Land Issues Resolving Commission (LIRC) in April 2020 to formalize the land rights of the landless and informal people across the country.

Chure rural municipality has recently signed the Memorandum of Understanding (MoU) with the LIRC and the people in Bategada village involved in this process through accomplishing the forms for the land distribution and land right recognition.

Out of the total 50 households, 50 percent of the families registered themselves as landless and other 25 households registered as informal settlers at the local level for their land rights to be recognized by the LIRC.

Disaster Event Experienced in the Community

The people, however, did not always live in Bategada village. Before the devastating flood and landslide hit them in 2008, they used to live in Khairala village in Ward No. 2 of the Chure rural municipality.

Their life there was not that much more prosperous economically but the quality was so much better because they had their own ancestral land and long-established community ties/social networks. Moreover, the land they owned in Khairala was much productive and much closer to the market, school, and road system. Therefore, the people had greater mobility then than now.

A community member said in an interview: "*We had our lands registered there, though the plots were small. It was more productive than the land here, which is so small that it does not produce enough to meet the food needs of the families.*" To augment their livelihood, which is mainly livestock raising and agriculture, many workers migrate to neighboring Indian cities to seek jobs.

The residents were forced to move in August 2008, when the village was hit hard by a flood and landslide that eventually destroyed all of the arable land. The landslide also washed away three houses and damaged the others, resulting in the displacement of 50 families. The heavy rain that continued for about a week adversely affected the entire life and livelihood in the area that had long been vulnerable to climate change.

Following the devastation caused by the disasters, the hardships of the already vulnerable indigenous community increased as most were left with no home, livelihood and, most importantly, land.

Landlessness changed their socio-economic status as suddenly they lost their most valuable asset. It did not help that the local and national government officials were largely blind to their difficulties so they were mainly left to help themselves.

The local government could have helped them significantly by formalizing the land tenure of the displaced families but 13 years later, they are still waiting to secure their rights over their land. With the lack of such a tenure instrument, the meaningful rehabilitation of the communities remains incomplete.

That is because to claim public services like electricity, road, school, health post, agricultural inputs, the community requires a land ownership certificate as proof of residency. Since they do not have these land certificates, they have remained unable to receive basic public services and facilities.

Left either partially or homeless and landless, the safety of the physically vulnerable groups including infants, children, pregnant, and lactating women became challenging for them.

One of the interview participants said, "*For the first five days after the landslide, we did not know what to do. But people began to send children, women and elderly to the homes of neighbors and relatives*" where they may find the better care and shelter.

Amid the devastation, some of the members of the community began to look for another place where they can settle and start discussions with the local leaders and administration about their rehabilitation. As the local officials seemed reluctant to help in their relocation and rehabilitation, they ventured on their own.

Finally, the community people decided to move to Bategada, which was isolated and remote but still good enough with its virgin land, forest, and pastures for the 50 families to adjust together to a new life and location.

Adverse effects of the disaster on the community

The devastating floods and landslide of 2008 adversely affected practically all aspects of the community's life as detailed under the following four categories.

Livelihood

The massive 2008 landslide displaced 50 families who had no choice but to move from their home in Khairala village to Bategada, an area classified as forestland.

Bategada is so remote that it is hardly reached by any institutions that can help ease the hardships of the residents, who rely mostly on subsistence farming. Unfortunately, they do not earn enough from farming in the area so many have had to augment their income by going elsewhere to work or raising livestock.

Compared to their previous home, there is little hope of advancing because of the dire lack of development activities and income opportunities. In their previous home where they had secure land tenure, they could engage in orange and vegetable production with excess crops sold in nearby markets.

Social

Forced to transfer, the families saw their social lives upended.

In Khairala, they had a wide social network, which they no longer have in Bategada. They have no easy access to schools where their children can get good education unlike in their previous home. Facilities like health and market are non-existent. They have to walk at least for five kilometers to reach the nearest health-post and market, as there are hardly any roads. They were able to establish a trail to take them to the market but this lone access to the outside world is cut off during the rainy season when the Thuligad River rises.

Then because of the lack of income opportunities, almost all of the male youth of each household leaves for seasonal migration to nearby urban centers. That puts an extra burden on the women, children, and the elderly who are left behind to fend for themselves.

Ashok Magar, the local head teachers, said that the food situation is dire in the village as the output of the households' farms is hardly enough to feed them for the next three to seven months, making them chronically vulnerable to hunger.

Then there is the fact that they are strangers in the area. Moreover, although they are still some distance from the nearest community, they are pressured at times to leave the place. Since they are in what is considered forestland, other people do not like to see human beings in the forest that they want to protect as part of the community.

Unfortunately, the local government does not have any policy or even vision or intent to help these displaced families. Thus, they are still suffering from the effects, therefore, of that devastating landslide and still waiting for meaningful rehabilitation and reintegration.

Tenure Security and Land Use

In Nepal, as in many other countries, land is the source of an individual, family or community's social, economic and political power, as well as identity. Therefore, legally-recognized ownership over land is vitally important. Unfortunately, with the 2008 landslide, 50 households lost their land tenure security.

Many of the families owned the land in their previous home in Khairala. However, in Batagada, they have become informal settlers as they do not have legal ownership over the land they have been cultivating.

Practically overnight, the 50 households that used to be landowners suddenly became landless and homeless because of the devastation caused by the landslide on their property in Khairala.

It has been 13 years since the disaster but the government has not taken any concrete steps to address the land tenure problem of these victims, merely mouthing words of commitment that appropriate actions are forthcoming.

When asked, the Mayor of the Chure rural municipality said, "*We are very much concerned on how to provide the public services and facility to the community in the Batagada, which is very much disconnected from the mainstream development that is being happening here. Landslide and flood have continuously been affecting many other places of this rural municipality too. Since the Batagada village is situated in the landscape, which is very far and has no good connections with the road that has further limited our capacity to address the problem*."

Discussions with the community revealed that the people have been living with the constant fear that *"they might be forcefully evicted at any time from this land*" as they do not have any formal document to prove that this land belongs to them. The ongoing dispute over the boundaries of the two local levels i.e., Chure rural municipality and Gauriganga municipality, adds to their fears of eviction.

Complicating the already knotty issue is the desire of some local builders and business people with strong political ties to take advantage of Batagada area's rich natural resources.

Batagada village is surrounded by the forest and pasturelands. It has stone and sand resources that the rival local governments want to exploit. However, the Batagada community is against the wanton extraction of the stone, sand, and the trees for lumber. Because of this stance, they

become targets of powerful people who are lobbying against their having formal land rights so that they can be driven out.

The remote location of the village has regularly been cited as the main obstacle to their securing land rights. But perhaps the real reason is that vested interests want to get their hands on the natural resources of the area.

Fortunately, the LIRC has embarked on a nationwide campaign to ensure the land rights of the landless including *Dalits* and Informal settlers, thus providing the local people the means to fight for their land rights.

National Land Rights Forum (NLRF) played a crucial role in this initiative, paving the way for the community to register their land claims that will be evaluated and eventually decided upon by the LIRC.

Environment

The natural environment makes the area vulnerable to the worst effects of climate change. Consequently, it will be easy to expect that the people living there will be vulnerable because they have chosen to stay in a forest area.

However, it should be noted that the local people have been vigilant and become stewards of the local environment. They protect the forest and the land and have opposed the excessive extraction of the stones and sand from the Thuligad River and the nearby forest.

However, extended periods of drought and heavy rains have caused landslides and floods that seriously damage the land.

Flooding and landslides are not only destroying the lands in upstream but also turning the agricultural land into unproductive riverbanks. Such losses could be minimized with the support of the local government and other development partners working in this sector.

Interventions in response to climate change

Climate change-induced events such as the floods and landslides that hit the community in 2008 adversely affect the overall social, environmental, and economic sectors of Nepal. And while the link between climate change with land tenure is "complex and not always discernible" (Quan and Dyer, 2019), it is nevertheless present.

Natural resources are the main source of the Nepalese economy. This makes the people highly vulnerable to changes in the climate, as these will ultimately affect their livelihood.

Nepal's government is fortunately aware of this fact and has undertaken a series of climate risk management policies and strategies at the national, district, and local levels (Patra and Terton, 2017). However, these have not been cascaded to all of the villages such as in the Bategada community, where resource management practices to respond to climate change are virtually non-existent.

Nepal first participated in climate change related activities in 2004 through its initial national communication to the UNFCCC Secretariat (Ministry of Forest and Environment, 2020). Since then, Nepal has advanced in both policy and practice at the national level.

Nepal, for instance, unveiled Local Adaption Plans of Actions to localize the climate change adaption in 2011, and adopted the Climate Change Policy in 2019. However, the Bategada community has not activated any of these initiatives to adapt to climate change and mitigate future risks.

The Government of Nepal together with the Food and Agriculture Organization (FAO) of the United Nations also developed the "Building a Resilient Churia Region in Nepal" (BRCRN) project with an objective to "*enhance the climate resilience of the ecosystems and vulnerable communities in the Churia region through integrated sustainable rural development and natural resource management approaches*" (FAO, 2019).

This project is aligned with the country's national development plans, climate change policy, its international commitments, and Nationally Determined Contribution (NDC) to the UN Framework Convention on Climate Change (UNFCCC). This project is expected to benefit 750 community-based organizations directly (FAO, 2019).

Lesson and Insights

The links between land tenure and the capacity of communities to adapt to the effects of disasters are always indirect and therefore very difficult to identify as they manifest in multiple forms.

In Bategada, all the households are using land according to community consensus. However, their land rights are yet to be legally recognized even after using that land for more than a decade.

Because of that lack of the formal land rights, people in this area have been unable to exert effective political pressure to affect municipal level decisions and demand development interventions for their community. Consequently, the community is trapped in the vicious cycle of landlessness, poverty, and food insecurity made worse when faced with natural disasters.

The lack of a land certificate also bars the community from claiming basic public facilities such as electricity and agricultural inputs that can contribute to the community's disaster resilience.

As most residents of Bategada village are indigenous peoples, they face widespread discrimination and exclusion from policy discussions. At the same time, their livelihoods are threatened with the continued degradation of the land and other natural resources because of the government's failure to recognize their needs, including their land and resource rights.

In this context, the adaptive capacities of the community people continue to be eroded, making them more vulnerable to the adverse impact of climate change and associated disasters including floods and landslides.

There is therefore a greater and more urgent need to establish and institutional rights of people such as those in Bategada over land, to give them an added tool to adapt to climate change.

There should also be a broader coherence and common understanding of the land tenure needs of disaster-affected communities. For example, in the case of Bategada, land and forest laws are contradicting, as forest laws do not allow registration as private land, which therefore puts the Bategada community in limbo.

It should also be understood that disaster-related displacement results in migration, thus requiring policy provisions on migration, rehabilitation, relocation, and reintegration of communities who are affected directly by the adverse effects of climate change. ■

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Governing Ancestral Domain Amidst the Changing Climate in Bukidnon, Philippines: The Talaandigs share their story

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The link between land tenure and climate change may not be easily observable. But this connection can be better discerned from a broader perspective, such as a landscape where a change in land use and management will have a substantive impact on ecosystem services such as carbon sequestration, water regulation, replenishment of underground water supply, and prevention of soil erosion.

Forest landscapes such as those governed by indigenous peoples (IPs), pasture lands spanning from ridge to reef and long stretches of coastal resources can provide such a panoramic perspective where these relationships may be discerned.

The story of the *Talaandigs*, an IP community in Bukidnon, Philippines demonstrates these relationships, where its ancestral domain plays an important role in regulating water supply to a populated city downstream.

The *Talaandigs* in the Kalatungan Mountain Range

Mt. Kalatungan is the fifth highest peak in the Philippines. It is considered a Key Biodiversity Area (KBA) and a major water source for households and industries in Cagayan de Oro City, and the provinces of Bukidnon and North Cotabato. Its headwaters feed into 35 river systems within the Cagayan de Oro River Basin (MKaRNP General Management Plan 2014 to 2018).

The *Talaandigs* is one of the seven tribes[1] in the province of Bukidnon and one of the 114 ethno-linguistic groups in the country. Like most IPs, the Talaandigs regard their natural environment -- land, forests, biodiversity – with respect. To them, the forest is a sacred ground. They consider the forest their church (where they perform their sacred rituals), their market (where they source their food), and their drugstore (as the source of their medicine for healing). It is thus important for the tribe to take care of the forest.

[1] The six other tribes are Higaonon, Bukidnon, Matigsalug, Manobo, Umayamnon, and Tigwahanon.

***Talaandigs* celebrating their culture by dancing in their ancestral domain.** *Photo by Xavier University DevCom Class 41, Second Semester, 2018 to 2019.*

The *Talaandigs'* ancestral domain is located in Mt. Kalatungan Range Natural Park (MKaRNP). They call themselves *Talaandig-Kalatunganon,* a self-ascription due to their proximity to Mt. Kalatungan. These IPs reside within the four *barangays* (villages) of the municipality of Talakag, Bukidnon called the "Miarayon Region." The region has an elevation of 4,500 feet above sea level and characterized as a hilly valley with rolling terrain. Its temperature ranges from 10 to 18 degrees Celsius given its elevation and the abundant forests.

The *Talaandigs'* ancestral domain embracing a territory of more than 13,000 hectares of forest landscapes in the Miarayon Region plays an important role in providing ecosystem services, particularly in regulating water flow and replenishment of underground water supply in the communities downstream.

For so many generations, the *Talaandigs,* given their respect for trees and forests, protected and conserved the vast forest landscape. This has not only provided the needed water supply of Cagayan de Oro but provided economic opportunities and tourism such as water rafting given the steep and narrow ridges of this river system.

Indigenous Peoples' Rights over their Ancestral Domain

While the territorial occupation of the *Talaandigs* over their claimed ancestral domain is acknowledged by nearby communities, legal recognition had been slow in coming. Land laws and

policies had been promulgated by a sector focusing on social and economic concerns, resulting to in-migration, entry of agribusiness corporations, and exploitation of natural resources.

Given this policy environment, the *Talaandigs*' ancestral domain had been subjected to various land laws and proclamations that stripped them of their ancestral rights and reduced the area of their claims.

In 1963, nearly 2,000 hectares were declared a Military Reservation under Presidential Proclamation No. 134, series of 1963. In the early 1970s, under the Presidential Assistance for National Minorities (PANAMIN), a tribal reservation was awarded to the *Lumads* (native/*Talaandig*) of the area. The National Integrated Protected Areas System (NIPAS) Act of 2000 covered parts of their sacred area. Likewise, the Department of Agrarian Reform (DAR) and Department of Environment and Natural Resources (DENR), under their respective programs, covered segments of their claim (Cartwheel Foundation, 2003).

The *Talaandigs* sought the assistance of the government but got only unfulfilled promises with no concrete actions. With so many frustrations, the *Talaandig-Kalatunganon* were forced to take up arms and rose up against the government.

Providentially, in 1997, a landmark legislation was enacted, titled Indigenous People's Rights Act (RA 8371 or IPRA) recognizing the rights of indigenous peoples over their ancestral domains. The claims for ancestral domains cover "all areas generally belonging to Indigenous Cultural Communities (ICCs)/IPs comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs, themselves or through their ancestors, communally or individually" (IPRA, 1997).

IPRA also provided for a process of titling of lands through the issuance of Certificate of Ancestral Domain Titles (CADTs) and Certificate of Ancestral Land Titles (CALTs). CADTs and CALTs are ownership tenurial instruments issued and awarded to an applicant community or clan. These tenurial instruments have no term limits. Aside from securing an ownership title, the IPRA respects the community's right to traditionally manage, control, use, protect, and develop their ancestral domain.

Impact of Deforestation on the Changing Climate

While the enactment of IPRA is commendable in protecting IP rights, from the perspective of landscape management and mitigation of climate change, this came a little bit too late.

The forest landscapes in Mt. Kalatungan, including the claimed ancestral domain of the *Talaandigs*, were exposed to massive logging in the 1960s and 1970s. The Bureau of Forest Development of

the DENR gave permission to three large logging companies to cut down trees. This left the once high-spirited forests bare, with only grasses growing (Eco-Cares Project, 2017).

This was further exacerbated by small-scale mining[2] activities using hydraulic techniques. Hills were leveled off to mine gold and other minerals. Soil erosion escalated. It was so bad that the river turned brown almost all year long. After some time, river islets started appearing. In addition, there were forest conversion to non-forest uses, timber poaching, charcoal making and quarrying, resulting in uncontrolled soil erosion, landslides, and flooding.

The residents were alarmed by what was happening. With degraded forests and the steep and narrow ridges of the river systems, the landscape has become hazardous to the communities downstream. Environmentalists protested and set up barricades to prevent logging trucks from passing by. They had even lain on the streets to show their resistance and indignation. Unfortunately, no decisive actions were taken.

Then on 16 December 2011, Typhoon Washi (locally called Typhoon *Sendong*) hit the province of Bukidnon and Northern Mindanao region with rains continuously pouring in the entire evening that reached up to more than 200 mm (some sources say 475 mm). Flash floods washed out houses, bridges, debris, and people.

Aftermath of Typhoon Sendong in Cagayan de Oro, 2011
(*http://www.unladkabayan.org/reliefops_dec2011.html).*

According to a National Disaster Risk Reduction and Management Council (NDRRMC) report in February 2012, more than 1,200 died and incurred PhP 2 billion (approximately USD 46.6 M at that time) worth of property damage. It was considered the world's deadliest storm for that year.

[2] Small-scale mining program is covered under Presidential Decree 463 – the Mineral Resources Development Decree of 1974 to generate employment opportunities. The City Mining Regulatory Board regulates it (Gatus, 2012).

Land Tenure and Climate Change Mitigation

After the devastating typhoon, the call of many is "*No More Sendong!*" There is now greater appreciation for the landscape, recognizing the importance of the watershed. Several projects have been proposed to reforest the watershed. Many studies were conducted and projects implemented to mitigate the impact of typhoons.

This augurs well for the aspiration of the *Talaandig-Kalatunganon* to redeem control over their ancestral domain. Partner communities and institutions now appreciate their contribution to the protection of the forests and conservation of the landscape and have supported their claim.

Taking advantage of IPRA's enactment, the *Talaandig-Kalatunganon* organized themselves into an association with the goal of strengthening the unity of the tribe towards cultural preservation, securing their ancestral domain and protecting the environment.

Under the banner of MILALITTRA (the name representing their four barangays, namely: **Mi**arayon, **La**pok, **Li**rongan, and **T**inaytayan, San Miguel **Tr**ibal **A**ssociation), they applied for registration with the Securities and Exchange Commission (SEC). MILALITTRA was officially registered as a legal organization in 2003. Subsequently, MILALITTRA was awarded the Certificate of Ancestral Domain Title (CADT) of 11,367 hectares of ancestral lands in the same year.

The CADT empowered MILALITTRA to govern its land and its people. With their land legally documented, it gave the tribal leaders the confidence in directing and administering the ancestral domain. MILALITTRA is now able to prevent intrusion of illegal occupants, negotiate with investors and regulate the felling of trees in the forests.

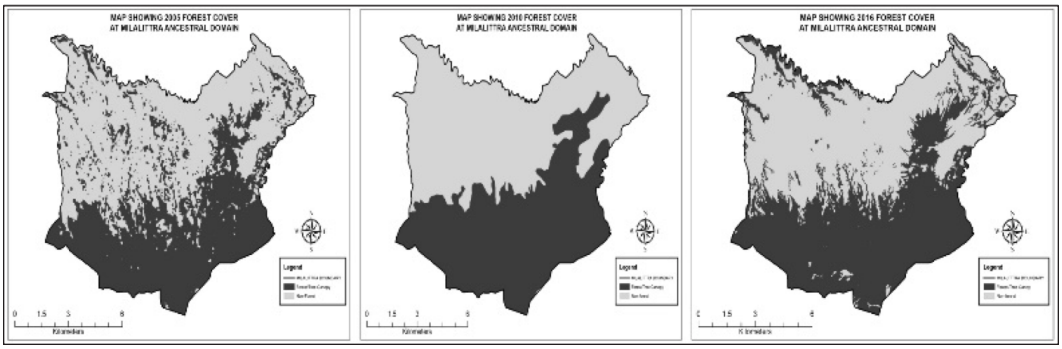

Figure 1. Maps showing the (a) MILALITTRA forest cover in 2005 (Source; ESSC Land cover); (b) forest cover in 2010 ***(Source: NAMRIA), and (c) forest cover in 2016 (Google Earth Satellite Images).***

Increased Forest Cover in the Redeemed Land

In a span of just 11 years, the forest cover of MILALITTRA's ancestral domain increased from 45.8 percent in 2005 to 47.1 percent in 2010 and to 49.8 percent in 2016. With the CADT, MILALITTRA had been empowered to decide on the use of their resources and safeguard their forest. They determine what are culturally appropriate projects that can be implemented within their area. For MILALITTRA, the major motivation as an IP community is the protection, preservation and rehabilitation of their *Igmale'ng'en* (sacred forest).

Given these initial results, it was recommended to augment their forest protection activities, enhance coordination and collaboration with local government units, government agencies and CSO partners, and advocate recognition of the pending application for CADTs of other Indigenous Peoples Organizations.

Reforestation through the Payment for Ecosystem Services

The issuance of CADT and the recognition of its important role in ensuring environmental integrity in the Mt. Kalatungan landscape opened opportunities for MILALITTRA to collaborate with other local stakeholders.

Furthermore, the inclusion of reforestation sites in MILALITTRA's Community Development Plan provided a concrete prospect for collaborative endeavor as reforesting the area will have impact on the supply of water downstream and contribute to carbon sequestration. These factors led to the design and establishment of the Payment for Ecosystem Services (PES) in Mt. Kalatungan.

The PES is a financing scheme anchored on pricing intangible environmental products and services adapted into a funding mechanism to generate economic return and sustain the ecosystem services.

In the case of the PES in Mt. Kalatungan, the concrete service is water regulation through reforestation of denuded lands. It was launched in May 2014 with the signing of the memorandum of agreement among various stakeholders including the sellers, potential buyers, the fund manager, private and public institutions, and the agencies constituting the monitoring body.

MILALITTRA with its offer of 1,648 hectares of its ancestral domain for reforestation acted as the seller. The buyers are those who would benefit from this scheme and include businesses, cooperatives, academic institutions, religious organizations, households, and even individuals. Xavier Science Foundation, Inc. (XSF), as the fund manager, acts as the intermediary between buyers and sellers.

Once the agreement is signed between the seller and the buyer, potential planters are identified with the concurrence of the MILALITTRA Tribal Chieftain. The seedlings are primarily sourced from

Launching of the PES and MOA signing among institutional partners in 2014.

MILALITTRA. Planting follows MILALITTRA's *rainforestation* farming technology including planting density. Every quarter, a monitoring officer checks the survival rate of planted trees and submits the monitoring report to MILALITTRA.

The inaugural year of PES in Mt. Kalatungan yielded encouraging results. However, numerous challenges are anticipated in the coming years in getting the continued trust and confidence of the buyers, ensuring delivery of results, and providing efficient project management.

Lessons and Insights

The story of the *Talaandig-Kalatunganon* is not an isolated one. Many IPs in Mindanao and in the entire country are going through the same journey, some may even be in a worse situation, especially those who have not secured their CADTs.

With the growing economic pressures and the scarcity of available land, the ancestral domains of indigenous peoples have become the target of multinational agribusiness corporations. Some government programs even encourage such negotiated and collaborative arrangements. Ancestral lands have also been identified as special economic zones, mining, and even tourism sites.

Unfortunately, studies revealed that such arrangements have not been beneficial to IPs and have negatively impacted on the environment. There are also reports of desecration of worship sites and disrespect of cultural traditions, resulting in conflicts and violence.

The COVID-19 pandemic will add more burdens to the IP communities and smallholder agricultural producers. With travel restrictions and the disruption of the food value chains, they become susceptible to unfair lending practices and unscrupulous marketing arrangements that expose them to the risk of losing their lands.

Given these emerging developments, a few lessons and insights may be learned from the *Talaandig* narrative, particularly in securing the rights to their ancestral lands and in advocating for recognition of land rights of IPs and a more responsible land use and landscape management that will significantly mitigate climate change.

- ***Recognizing IP land rights spurs forest conservation.*** With the awarding of CADT to MILALITTRA, the forest cover of their ancestral domain increased by four percent or about 440 hectares in 11 years. The CADT allowed MILALITTRA to govern its domain, thus preventing intrusion of illegal occupants and investors, regulating the cutting of trees in the remaining forests. It also allowed them to collaborate with other stakeholders in managing their common landscape.

  While MILALITTRA's story portends well in protecting the forest, the rights of IPs to their ancestral domain is continually challenged by the intrusion of business corporations, the use of power by politicians to control these resources and the non-observance of free, prior, and informed consent (FPIC).

- ***Landscape governance sustains ecological integrity.*** Landscape governance is used broadly in this paper to refer to the management and administration of a physical topography where relevant stakeholders participate in making decisions. With this wide-ranging perspective, decisions are made to consider not only the social and economic concerns but the environment as well.

  This is crucial for MILALITTRA's ancestral domain being located in a landscape where its land use and management can have beneficial or destructive impact on the communities downstream. This is true in many regions in the country being an archipelago where the islands have a ridge-to-reef landscape. Thus, land use planning and management is critical, and collaboration is indispensable.

  At the policy level, several bills have been filed in Congress to legislate a comprehensive national land use plan. Unfortunately, after more than two decades, no such bill has been enacted. Given the importance and urgency of the situation, the current administration drafted an Executive Order on "*Fast-tracking the implementation of Land Use-Related Policies to Ensure Sustainable Land Use and Management*."

  Acknowledging that this may take some more time while the risks are increasing, collaborative actions among various stakeholders should be initiated and responsive local land use plan should be advocated. Towards this end, the PES-Kalatungan and other similar platforms can be promoted for various stakeholders to work together.

Moving Forward

With new studies revealing an exceedingly inequitable access to land resources and the worsening impact of global warming, these lessons can provide guidance not only in strengthening the claims of the vulnerable groups but in encouraging collaboration and joint undertakings to save our planet.

It is therefore recommended that land rights advocates and defenders include and prioritize these agenda into their programs. Along this direction, it is proposed to intensify organizational strengthening of Indigenous Peoples Organizations, facilitate the collaboration with other like-minded stakeholders and advocate the recognition of the Indigenous Peoples rights over their ancestral domains.

At the international level, these initiatives can be reflected in pursuing the Sustainable Development Goals (SDGs), particularly those of SDG 1 (No Poverty), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). ■

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The views of this study are solely of the authors and do not necessarily reflect of those of ILC.

The International Land Coalition (ILC) is a global alliance of civil society and intergovernmental organizations working together to put people at the center of land governance. The shared goal of ILC's over 250 members is to realize land governance for and with people at the country level, responding to the needs and protecting the rights of women, men and communities who live on and from the land.

ILC's network in Asia is a coalition of 54 organizations working on land issues across 13 countries. The ILC Asia network comprises of regional, national, and local civil society organizations, producers and farmers, indigenous peoples, pastoral organizations, as well as research institutes, non-governmental organizations, and constituency-based organizations. ILC-Asia is committed to monitoring national governments' adherence to the Sustainable Development Goals (SDGs), promoting the Voluntary Guidelines on Responsible Governance and Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT), to supporting World Forum on Access to Land, to putting forward the principles of Food Sovereignty, and to developing a space for dialogues on the UN Guiding Principles on Business and Human Rights through the National Action Plans (NAPs).

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Trustable land information systems are fundamental for responsible land governance. There is a need for sustainable, transparent, reliable data on land rights to empower people and communities to defend their land rights. Thus, the Land Watch Asia Land Monitoring Working Group (LWA LMWG) provides a platform for civil society organizations from seven countries in Asia to discuss, enhance each other's capacities, and develop tools towards monitoring global commitments as well as policies and programs of governments on land and resource tenure.

ANGOC serves as the convenor of this working group.

The impacts of climate change on human communities and land use systems can bear heavily on people's land access and land tenure in ways that affect their homes and livelihoods, well-being, and sense of security. Communities may be hit by sudden and extreme events such as storms and floods, or they may be gradually detached from their homes and lands as a result of slow-onset changes such as desertification, sea-level rise, and overall shifts in weather patterns.

But while climate change affects everyone, it disproportionately impacts the lives and livelihoods of those who are poor and lack land tenure rights. Poverty often forces people to cultivate marginal lands or occupy fragile public land or areas that are vulnerable to erosion, flooding, high tides, and storm surges. Moreover, the lack of tenure security limits people's choices and diminishes their capacity to recover and rebuild when a disaster strikes.

This publication attempts to describe the links between land rights, climate change, and resource management. It shares experiences from rural communities in Bangladesh, Cambodia, India, Indonesia, Kyrgyzstan, Nepal, and the Philippines.